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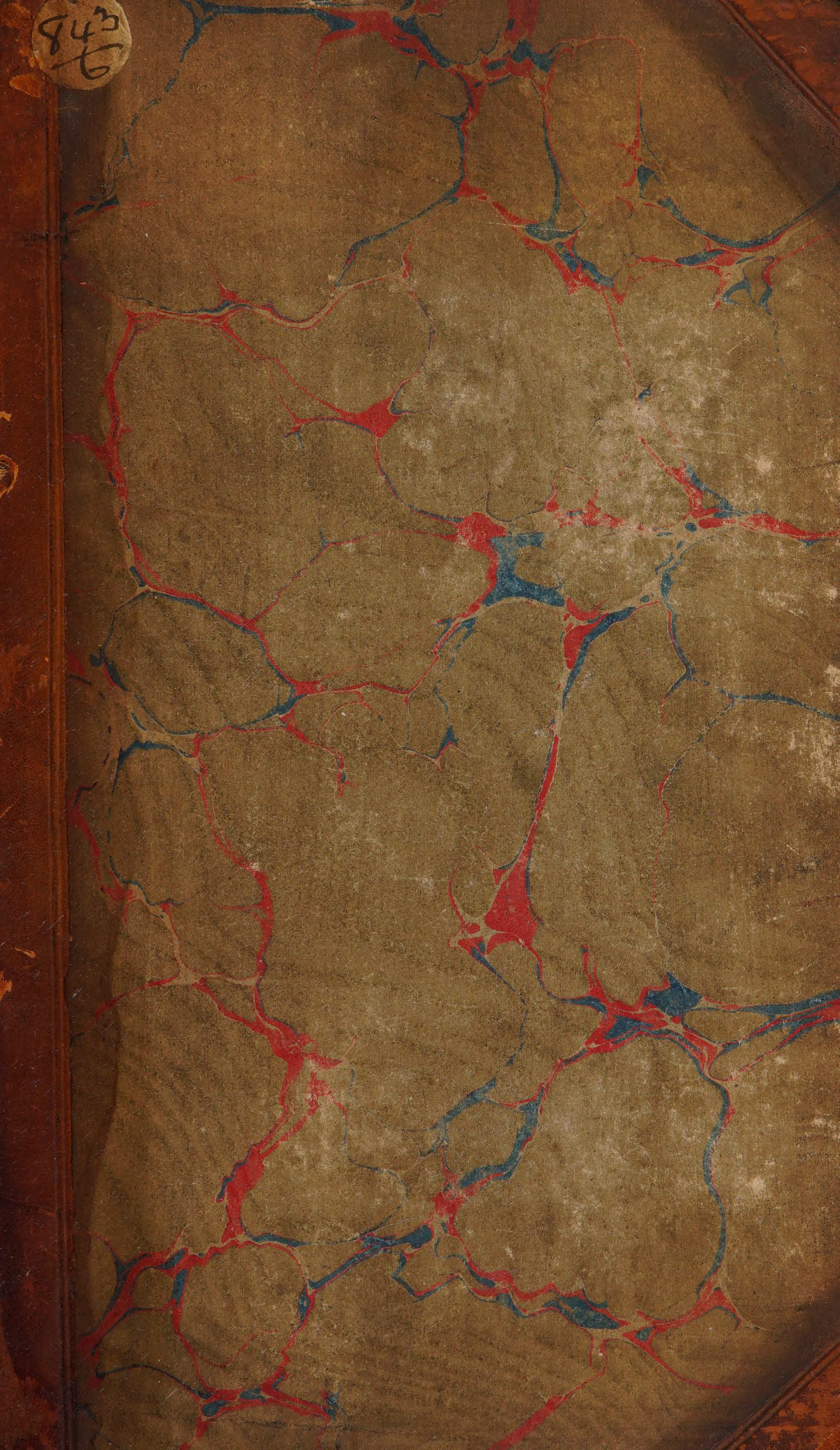

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A

TREATISE

ON THE

ART OF BAKING,

WITH A

PRELIMINARY INTRODUCTION,

SHEWING
THE VARIOUS PRODUCTIONS OF THE DIFFERENT QUARTERS OF THE GLOBE.—OBSERVATIONS ON THE PRESENT STATE OF AGRICULTURE.—THE FARMER AND MIDDLEMAN.—STRICTURES ON THE CORN BILL, &c.

WITH

A NUMBER OF VALUABLE RECEIPTS,

Original and Selected,

FOR THE

BAKER AND DOMESTIC CIRCLE.

By JOHN WHITE, Baker, Dunbar.

> The bitterness is past, and what remains
> Of life, life to come, I hope is joyfulness,
> Not that false joy the unthinking only feel
> When fortune smiles upon them,—but the joy
> Arising from a consciousness of right
> That I have done my duty to my King—
> My Country—and to—Heaven.——*Temora, or the Last Field of Fingal.*

EDINBURGH:
PRINTED BY ANDERSON & BRYCE.

1828.

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PREFACE.

Some say that a preface is necessary, others again say that it is not; one says that a preface will do good, another says that it is only productive of evil; while a third contends that a preface is only written for the sole intention of selling a useless work, and a fourth affirms, that the most useful work will not sell without one.

Now, which of all these different opinions is the right one, will any wise person tell me? If not; pray, may they not be all equally wrong? But no matter, custom has sanctioned the preceding, and therefore, what? Why I shall take the liberty of beginning my labours with a preface too.

Well, then, to begin, and first, for excuse. Truly, this is such a beaten track, so many passengers have gone over the road, and left so many holes behind them, that perhaps I might break my neck, and so I am not hypocrite enough to make an excuse. Authors are a vain set of people, whatever garb they may be pleased to assume; but pride, in the dress of humility, is detestable.

So it is my good-fellow; but, then, better not write at all, as wander out of the beaten track; be wise, stop in time, or perhaps you may get into some slough of despond or other, and then softly, what may happen; I confess that I am no prophet, and though I were, few prophets are fond of prophesying evil of themselves. At all events, should I even miss the proper steps, and tumble in, why I shall trust to some kindred genius or other, to help me out again, and it will be hard indeed, if I cannot find one solid spot to set my foot upon.

But, pray; I am glad, my good friends, that you are all so well inclined, for in sooth the present is but a prayerless age. Granted; but, my good Sir, the first step, in reformation, is to begin at home. Beware how you introduce your grey goose quil into a bee-hive; bees are little creatures, but they carry stings with them: this information is of little consequence. I know as much, years ago, by woful experience; but then, when they sting me, I chop them through the middle, take their honey, rub it in the wound, who then is the greatest sufferer? But what, may there not be more meant than meets the ear, in the last expression; and critics, what of them? Nothing. I will have my title-page a fashionable one, and if their squares and compasses are correct, even every angle of the book may be found a right one. An *ignoramus*,—

so be it, my good friend, may not ignorance befriend the wise man at times, and here? Yes; I really mean to give instruction.

Instruction,—well, do you ask what that instruc-is to be? The question is a fair one, and I shall endeavour to shape an answer to it. But should it happen, as it may happen, that you are dissatisfied with the answer that I shall give,—impute your dissatisfaction, either to your own stupidity, or my ignorance. I do not care which; but rather —I must inform you, that my back is not a broad one, though there has been many a sack of flour upon it. You all have heard, I believe, of a certain king that once reigned in Egypt. Well, what of him, was it Pharaoh that ordered his rascal of a baker to be hanged? The same; but wherefore was the gentleman thus so highly exalted? His crime,—but it is not upon record; and has not royalty itself—Softly, Sir,—it is dangerous meddling with edge-tools. Very true; but, somehow or other, St Helena has just this moment come into my head,—well, drop the subject at once, and go on with your own story in your own way. He is a wise man that can give an advice; but he is a wiser man that can take it.

So the inference of all is no matter; but by my old thread-bare black coat that is at present hanging in tatters around me,—I return you my humble and hearty thanks. It is consolation indeed to meet with reasonable people, who will let a poor fellow tell his story in his own way, and be pleased with it, without rhyme or reason. The subject may be of little consequence, but that is nothing; I promised instruction, and what instruction, I presume, you will ask again? Why, Sir, to end the matter at once, I mean instruction in that art, which every old woman is acquainted with, and, for ought that I know to the contrary, an art that our grandmother learned before the flood; in short, I mean to give instruction how every one may make a piece of bread.

What impudence some one may say,—you give instruction who has hardly, by your own confession, a coat upon your back; have not many wealthy and learned men wrote upon the subject already? Besides, is not the art known to every old woman in the land, and of what use will all your instruction be, even on the supposition, that your coat was a much better one than what you say it is? Pray, what great discovery can you make in an art that is so well known already? Perhaps I may, or perhaps I may not make some great discovery,—the subject, however, I deem, is of as much consequence as a discourse on the wing of a fly, or a learned dissertation on the propagation of insects. I grant that many an old woman can bake bread,—let them count the cost of it,—and I also grant, that many a great, wise, and perfect man, has written upon the subject before me; but, to me, who am neither great, wise, nor learned, it seems something strange, that the imperfections of perfect men should be so many, and so great!

What are all the learned systems of the baking art that have been given to the world, but supposititious theory, collected from scattered fragments of intelligence, often obtained from those who know nothing about the art at all. Can any of these learned men declare that their knowledge is acquired at the trough, the table, or the oven mouth? If this had been the case, would a celebrated chemist have told us that four pounds and a-half of salt, with an ounce of alum, was dissolved amongst a pail of water (seven pints Scots,) to set a spunge with, for a sack of flour? This forsooth is given as the system of London,—the statement made me stare, and ask this question more than once, "Friend John, was you ever in London?" "Indeed I thought that I had been so for some years; but then, either the learned gentleman or I must have been mistaken about the matter; I think that I have seen some spunges set, both in London and elsewhere, and spunges of different kinds; yet never, to the best of my recollection, did I ever see salt put into the first spunge,—alum is out of the question. Seven pints of water is rather little to the first spunge for a sack of flour, but it may do however; if the chemist had known the nature, either of yeast or salt, he would have known this much, that such a quantity of salt, among seven pints of water, would have killed three times more yeast than what is required for a sack of flour. Perhaps the learned gentleman meant water for the whole sack of flour,—in this case, the salt given is sufficient; but then, this statement is also incorrect, as he gives a spunge for three sacks of flour instead of one.

Bread is properly termed the staff of life; and does it not seem strange that so few people understand what bread is, or how it is made? I grant that learned men have written upon the subject, but they have said but little, and that little as little to the purpose. Many say that the baking art is a simple one; so it is to those who know nothing about it, or to those who are in possession of scientific knowledge only. Simply to mix flour, water, and yeast, so as to produce fermentation, is nothing; a child or a fool may do this,—and to obtain a chemical knowledge of the constituent principles of flour, is level to the meanest capacity. But to make a good loaf of bread from this fermentation is not so easy as many are apt to imagine. If a baker learn the art in ten years, he is a clever fellow; I have seen many of twenty years standing that had not much cause to boast of this knowledge.

The man of science, by overlooking the baker at his work, may, in a short time, gain a very correct idea of the mechanical part of the art, but he may look for twenty years, and at the end know as much of the chemical operations as the child that is unborn. In fact, he cannot learn simply as a spectator, he must put his hand to the work, not for once or twice, or for a short period, but for years, and that with unremitting attention.

There is no doubt but that the arts are much indebted to science, nevertheless the baking art has received but little assistance as yet from science, properly so called. It is not analyzing a pound of flour now and then that will develope the mysteries of the art of baking, or give the scientific man the knowledge how a good loaf of bread is produced. The learned man cannot gain this knowledge himself without years of intense application, then how can he give that information to the public, relative to an act of which he knows nothing, but merely the constituent principles of flour? The learned man may be right in his opinion, and in what he says, but all that he can say must be merely conjecture. He may be right; but it is more likely that he is wrong. Of other arts I can say nothing, but of my own profession the greatest part of our learned men are very void of their mark. Let learned men say what they will, practical knowledge is superior to theory, as the only foundation of all our learned systems of baking.

There is an apparent simplicity in the art of baking, that may easily lead any man, in possession of science only, into mistakes. But the fact of the matter is, very few of them pay much attention to the subject; the old proverb, that every old wife may be a baker, is the text from whence all these conclusions are drawn. In this case, they are in a manner excusable; they have learned the art at their mother's fire-side, and however faulty the building may be, the superstructure is not theirs. I grant that they have polished the surface of it, but in taking the rust away, they have made so many gaps in the building, that it has become necessary to employ a little paint to conceal all defects. Gaudy colours may please the eye, but then, when used, they should be properly applied, and not employed to the daubing of other people's coats. In plain language, the scientific man's researches has done more harm than good to the baker; he has given him no directions that he can follow, and all that he has said is merely the echo of vulgar report, that tends only to the traducing of the baker's character.

I blame no person for revealing what he knows of any art, but certainly that revelation should be in accordance to truth, and where nothing is known it would be a great mark of wisdom to say nothing. How many statements has proceeded from learned men relative to the bakers, and the means that he takes to adulterate his bread, not one of which has any foundation in truth. I ask, from whence these learned men obtained their information? If they answer, from a baker,—I say in return, that no baker either would or could say such things; and if it is said that the information is derived from common report, let me inform those gentlemen who are not acquainted with the matter already, that common report is often a common lie. Yet on this peradventure has the character of a most meritorious class of men been traduced; they have been made the authors of actions far more criminal than that of those men termed heroes, who have left thousands on the field of battle.

Let me beseech you, learned men, to learn a little more before you write, and make yourself acquainted with the subject that you treat upon before you make your labours public. Let science be united to practical knowledge, and then your information will be truly beneficial. But this, with regard to the baking art, is not to be hoped for, the temptation for any learned man to interest himself in this art, is but small indeed. Unfortunately, the art is so well known by those who know nothing, and the profits of the trade so small, that it has now got into a disrespectful state. So much so indeed, that any gentleman would think himself degraded were he to turn his attention to such a mean art; and the learned man thinks it below his notice to trouble himself with it in any shape, unless it is to make public those very things that have no existence but in his own imagination.

The baking was once an honourable profession in the world, now it is otherwise,—at least with reference to Britain. Of late years, the state of the country, with the administration of wise laws, has altered the condition of the baker completely. In this age of refinement, when moral worth is estimated by the weight of the purse, that profession will be the most honourable where most money is obtained, consequently the baker cannot expect to become an honourable man, being restricted by law to a certain rate of profit, which, in a regular business, will barely give him a decent subsistence, and nothing more. The distiller—the brewer—makes a fortune by the increase of drunkenness, he keeps his carriage, is a gentleman, and respected by the greatest in the land; but the poor baker, as he has not the honour of being a manufacturer of slow poison, and as his labours tend more to the support of man in general than the emolument of the doctor, the undertaker, and the grave-digger in particular, is, perhaps properly enough, kept in the back ground. There may be public motives for this, I will not say, we know that there has been a cry lately, but no matter. Although the baker cannot now a-days reach to that height of respectability which wealth bestows, he has this consolation, that his labours are for the support, not the destruction, of the human race. He may be despised,—but his art is identified with the welfare of his species, and while these mushrooms shoot who gain the world by adding to the misery of it, look down upon him with contempt, he can reply, in derision of their foolish boasting,

> Nor purse nor station makes a mighty man.

Almost every art of late years has been improved, the baking art excepted; and for what reason is this art still kept in its infancy? It would appear, to a casual observer, that either the art is susceptible of no improvement, or that the bakers are ignorant fools. But the fact of the matter is, that bakers themselves do not make any improvement upon their own art, as both law and public opinion has confined them to certain rules, and by these rules they must abide, no matter whether right or wrong. This is one reason that the baking is so little understood; and another is, that every person imagines that they know every thing about it. Any old woman can be a baker. So says the world; but the world is wrong in this particular, although learned men have given their sanction to the report.

The statement of our learned men, however, is far from being correct,—what they give us is only, on their part, hearsay evidence, which is far from being true; in many particulars it is quite the reverse. None of them ever learned the art; they have merely written upon report, but in this they are certainly blameworthy, in making vulgar report the ground-work of all they say, instead of endeavouring by practice to gain a proper knowledge.

Learned treatises by scientific men, who are ignorant of the practical part of the art they treat upon, must always be imperfect. In my opinion, it is the artizan alone that can give proper directions in his own art; whatever that art may be, his language may not be so florid as might be wished, nor so correct as the rules of grammar require, yet there is strong a presumption that the artizan's directions will be more intelligible to the most of readers, than the learned work of a person who has only the theory of any art.

The following Treatise upon the Art of Baking is the production of one who is a baker himself, and whose knowledge has been acquired, not by listening to other people's reports, but by years of incessant toil and application. The learned system I have rejected; for this plain reason, that although the rules given may be excellent, they are such as no baker can reduce to practice. It may be asked then, what system has the Author adopted; his answer is, that the baker must accommodate himself to passing circumstances,—a regular system cannot be adopted, and therefore the directions given are in general terms.

What the public may think or say of my labours time will tell, perhaps they may be thought useless by many—be it so; but I hold it as a truth, that he who improves the art that he has learned confers a benefit upon his fellow-men. That the baking art is but little known I maintain, notwithstanding the old proverb so often repeated. I grant that many an old woman can bake bread to please herself and her household; but for all that, few of them know much about the matter, and even many professed bakers themselves are still ignorant of the first principles of their own trade.

To those who are bakers indeed, this assertion will need no proof; and as for those who are merely such by profession, there is no proof strong enough to convince them that this is really the case. A half-learned baker, (and unfortunately there are not a few) is the most untractable animal in existence,—to convince him he is wrong is impossible. For such people I do not write, perfection does not require instruction; and should any perfect man get his hands upon this work, my advice is, that he throw it aside when he comes to this place. For the author, after twenty years experience, is not perfect, he still has much to learn.

To learning I lay no claim; and without all question there are many bakers in Great Britain more capable of doing justice to the work than I am, but as no professed baker has as yet done so, I have presumed to take the work upon myself. I cannot say that I have succeeded to my wish, and have not the vanity to suppose that no amendment can be made; nevertheless, the work may not be unacceptable to the generality of people. This, I believe, is the first attempt made by a regular baker to make his art public. The attempt, perhaps, may awaken inquiry, and lead others better qualified than I am to devote some of their spare time and talents to the improvement of such an useful art.

Many will say such a work is uncalled for; the art is so well known already by every one. It is this very knowledge which, in my opinion, calls for something of the kind. Perhaps I may offend when I assert, but it is nevertheless true, that the knowledge which the public are in possession of, relative to the baking art, is very imperfect, often erroneous, leading them into mistakes and false conclusions. Others again, among whom may be ranked my brethren of the coat, will be apt to say that my labour will be worse than useless, as far as they are concerned, tending to do them more harm than good, by laying open the mysteries of the art to the public. It is true, that there are mysteries in the art of baking, which none can understand but those who are really bakers, yet there is none that it is necessary to conceal. The bakers, in this respect, have done themselves a deal of evil, they effect to make a mystery of the art, and it is easy to suppose that the very idea of concealment leads the public to imagine that there is something wrong. Hence reports are propagated injurious to the bakers' character, and however unfounded these reports may be, when they are universally reported, they are soon generally believed; then follows the adoption of private baking, every one making for themselves what they can procure in the baker's shop, both cheaper, and of a better quality.

Let the baking art be known; let all its mysteries be made plain; and I am confident that private baking will cease. It may be asked, what proof is there for this conclusion? I answer, the strongest in the world; all the proof that self-interest can give. There are two motives, and only two that lead private families to bake their own bread; these are, either to procure it cheaper, or unadulterated. The cry against adulterated bread is great; but the principal cause of private baking, is the price; an underseller is never blamed for adulterated bread, although, if such is to be found in Britain, it is only in the undersellers shop; as for the price, the baker sells his bread cheaper than any private family can bake it.

The baking art is at present a degraded one in the public opinion, and I may not live to see it raised from its degraded state; yet I hope that my labours have not been in vain, that they will ultimately lead to it. It is a scientific art; as a science it should be learned. The Author is a baker, an enthusiast in the art: this may be called madness! Be it so, I wish the distemper to be universal among my brethren,—none but an enthusiast, as he is termed, can make improvements, or rise to perfection in the art. The mere plodder may be a living machine, he may perform his work with mechanical precision; but he does not improve, he has no pleasure in the work of his hands. He takes to his daily labour as to a daily task, the first hour tires him, the day drags heavily on, he wishes for the hour of rest, that he may retire to the ale-house, or take a useless sleep in his arm chair. Thus his days pass on in a joyless employment; far otherwise is it with him that the world calls an enthusiast,—every day brings him new enjoyment, his work is a pleasure, and, when the day is finished, the recollection of the improvements he has made are pleasant to the soul, and he passes his hours of relaxation in the anticipation of greater improvements to-morrow.

The man who writes only for praise, does not deserve to be praised; but were praise withheld, the world would go to ruin. Dear to the soul of man is the voice of praise, and disguise it from himself as he may, vanity is the ruling passion in all. It is the voice of praise that calls the hero to the field, that bids him bleed to save his native land,—it is the voice of praise that animates the senator when he stands forth the champion of insulted justice,—it is the voice of praise that stimulates to every noble deed,—the voice of praise is virtue's greatest friend,—were it withheld, what merit would we miss? For praise the hero fights, —the martyr bleeds,—the poet starves,—the author trims the mid-night lamp, and praise is the object of my present labour.

But while the voice of praise is dear to all, well would it be for man were praise only bestowed on actions that are beneficial. To appear as the benefactor of mankind is my ambition; whether I may be reckoned such or not, I cannot say. Unqualified praise I cannot look for,—the most faultless work many will stigmatize,—nor do I expect indiscriminate censure,—the worst production will find admirers in the world. Nevertheless, the censure of the good and wise (that portion of my species, whose praise is worth acceptance,) I hope I do not merit; and the praise of fools, their praise and censures are both alike to me,—I get but little by it. Through the course of the work, some of my observations may be deemed severe. I have advanced nothing, however, but the truth; it would have been more congenial to my disposition to have written in milder terms; but the subjects under consideration would not admit of the fictions of romance. Experience has been my prompter,—experience which has cost me much, and my hope and wish is, that no baker, after me, may make the like purchase.

THE AUTHOR.

Dunbar,
10th March 1828.

ERRATA.

Page 31, line 11, *for* passaw, *read* papaw.
37, 5, *for* animalcule, *read* animal.
38, 16, *for* spiceries, *read* species.
103, 12, *for* cause, *read* course.
104, 8, *for* save, *read* receive.
105, 2, *for* condemning, *read* condensing.
107, 9, *for* in, *read* is.
107, 4th line from the foot, *for* turned, *read* burned.
121, 2, *for* dispose, *read* despair.
126, line last, *for* such, *read* each.
127, 4th line from the foot, *for* worst, *read* wisest.
164, 23, *for* uncovered, *read* undressed.
170, 6, *for* mixture, *read* mortar.
170, 7, *for* hour, *read* our.
185, 3, *for* nine, *read* none.
199, 5, *for* this opposition, *read* their operation.
211, 5, *for* acid, *read* aid.
213, 14, delete the word not.
291, 8, *for* or, *read* on.
350, 2, *for* despatched, *read* departed.

Book IV. is numbered VI. by mistake, and so on progressively through the whole Work.

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TREATISE

ON

BAKING, &c.

BOOK I.—CHAPTER I.

Introductory Observations.—The Polar Regions.—Lapland.—Mexico.—The Natives of each Country.

When the Almighty bestowed this world upon man, he gave him also the power and the liberty to convert the materials of it to his use. From the bowels thereof he draws forth an instrument for his work,—and the surface supplies him with daily food. But it may be said, that if the earth was given unto man for a habitation, and the supply of his daily wants, that the means of happiness, in this respect, is unequally divided. It is true, that in this view of the matter, and considering the spontaneous productions of the earth, where no cultivation is, it will appear that there has been but a partial distribution. But, on a closer inspection, and taking into account those powers that is given unto man to ameliorate the soil, and consequently his own condition, we will find, that the means of happiness, and the blessings of Providence, are more equally divided than we are aware of. Man is a restless creature in himself; and in his happiest moments, he is ever looking forward to some future good. This by many will be considered as a defect in human nature; but whether it is or is not, I will not stop to inquire: but even on the supposition that it is so, it is generally observed, that notwithstanding the natural discontent of man with his own condition, he, in most cases, out of choice, prefers that climate where providence has ordained his lot; whether he reposes under the canopy of a palm tree, or builds himself an hut with the snow of the Polar regions. At the same time it will be found, that the food which different climates produce, is exactly suited to the taste and the health of the respective inhabitants.

Here, in this respect, we must own that nature, or more properly speaking, the God of nature, has been, and still is, extremely profuse in his bounties to the creatures he has made. But the chief good has been bestowed upon man,—considered either in the habitation that he enjoys, or the food that is given for his support. The inferior creatures, however numerous and diversified they be, are in a manner confined to one particular spot, from whence, if they be removed, they soon degenerate; and many will not survive, for any length of time, a removal from their native climates. Thus the lion and the tyger inhabit the torrid zone; the shaggy bear takes up his habitation in the wintry regions of the Poles. None of these creatures ever think of invading the territories of another; neither is their constitution formed for such a transposition. But man inhabits all climates; wherever he can find a spot of ground to set his foot upon, there he fixes his habitation. In whatever climate he was born, he may wander through the world, his constitution adapts itself to the change, and he thrives alike on the bounties of an indulgent Father,—and old age overtakes him alike, whether he is an inhabitant of Greenland, or of the sultry plains of India.

As man's superiority is seen in this,—so is it in that food which is given unto him; in this respect his blessings are greatly multiplied. Many of the inferior creatures are restricted to one kind of food; but man has no restrictions laid upon him, and those things that are given to him for sustenance, are multiplied to almost infinity. Does not this call on man to be grateful; and does it not declare, that however man may be debased by sin, he is notwithstanding his transgressions, still the favourite of heaven?

Let us take a short review of a few spots upon the surface of this earth, and see what their productions are, relative to the support of man. Whether that support is drawn from the sea or the dry land;—whether it is animal or vegetable fare. In this review perhaps, we may see much that will surprise us. Some rejecting wholesome food, that is easily procured, and seeking, with much labour, that which is more calculated to destroy life than preserve it: others again abusing the gift of providence, and running into extravagance, waste, and intemperance; while a third set of people deny themselves the pleasure of taking daily food, some for religious, others from avaricious principles.

It is evident to all, that the support of man must be either the production of the dry land or the sea; but where there is no vegetation, there can be no vegetable fare. We, in this favoured country, perhaps, cannot comprehend how nations can subsist without vegetable productions. There are such nations, however; and those little people that surround the Pole, must, of necessity, be either hunters, fishers, or fowlers, and perhaps the whole three united, to procure themselves subsistence. Are we not apt to pronounce these people miserable, whose chief food is the flesh of the bear, the whale, the gannet, and the seal? and yet these people have their enjoyments. We cannot judge of people by their outward condition: and I question much if an Alderman at a turtle feast, is as happy and contented as these people are, when regaling on the putrid flesh of the whale, with stinking oil for a sauce.

Lapland presents few vegetable productions; but in the absence of these, the Laplander finds in his rein-deer every thing that he can desire. The thoughtless people mentioned above procure these creatures only to kill for immediate use; but the more wise Laplander has reduced them to domestication and servitude. While he sometimes makes a kind of bread from the dust of rotten wood, and dried fish-bones ground into a powder, in the rein-deer he has every thing. They feed him,—they clothe him,—with their skins he makes his snow-shoes, his bed, his tent, and with the same materials his sledge is shod. Of their milk he makes cheese,—the whey he puts to immediate use, or boils it up with the wood of sorral, until it congulates; he then preserves it in vessels under ground, as a delicacy for their long and tedious winters. With the blood he mixes the marrow, this he also preserves as a sauce for the venison of the northern regions, when the spring comes on. In fact, there is not a single bit of this valuable animal but what is converted to some useful purpose or another by the native of Lapland. The sinews make him bow-strings, thread for sewing, and springs or snares, for catching fowls. Their horns are converted into glue, and their tongues are exported to the more southern parts of Europe, where they are much esteemed. These exports procure for the Laplanders what every nation on earth is fond of,—foreign toys and luxuries; and possessed of this creature, he envies not his southern neighbours their more genial climate, or their magazines of corn. He wraps himself in his furs, traverses his icy fields, rejoicing in all the blessings of his lot, and thinks no mortal is more happy than himself. To leave his native country, and take up his abode in another, never enters into his head: he may occasionally make an excursion to Finland, while wintry darkness overspreads his native land; but no sooner does the spring return, than he also returns with delight to the much valued spot, stormy and tempestuous as it is.

Happiness is neither in place nor station, else why are the Laplanders, and the nations around the Pole, so contented with their cold and boisterous climate, and the humble fare that it produces? If these are happy in the sterile regions of the north, that land of perpetual storms, have not the inhabitants of Great Britain a greater reason to be happy and contented? But, alas! our blessings are so many, that we cannot perceive one of them; they cluster so close about us, that they are completely obscured from our view; or we see them, as the Greenlander at times beholds the distant landscape, through a deceptive medium. The mist of passion, or of sordid interest, intercepts our view, and we seldom see matters as they really are; but whether we perceive and acknowledge the blessings that we receive or not, the goodness of God still remains, his love is the same to-day, yesterday, and for ever.

From this land of sterility, we turn our attention towards the more genial climates of the West. What see we there? Nature in her loveliest dress; there she puts on her gayest colours, and wantons in the luxuriance of beauty. There, all that man could wish for is poured forth in vast profusion. But do we find him a more happy mortal than the inhabitant of the Pole? We answer, No; in whatever clime he is to be found, man is but man,—and while he is in this world he is inseparable from the frailties of humanity.

The equatorial regions present us with every luxuriance of nature; but it may be mentioned as a curious fact, that those plants from which man draws his chief sustenance, are no where to be found in a wild state in that quarter of the globe. The plantain, the cassave, maize, and the potato, form the principal food of the greatest part of the inhabitants; but none of these are natives of the soil. The same may be said of wheat, which was introduced in rather a curious manner, or what the world would call, by accident. The accident, as it was termed, was simply this: A negro servant that belonged to the monks of Quito, happened to find a few grains of wheat, amongst a quantity of rice, that had been sent from Europe for the supply of the troops. These grains, a monk of the name of Rixi got possession of, and planted them on a small plot of ground before the convent. The grain flourished beyond expectation; and, considering the small quantity of seed, the harvest, according to all accounts, was an abundant one. The monks of Quito still preserve, as a precious relic, the small earthen jar in which the first harvest was gathered; and well may they do so. I believe that this is the only miracle of mercy that these messengers of peace ever wrought in that much injured country.

As a great proportion of the land under the equator rises very high, it is only on some particular spots where wheat can be cultivated: above the altitude of ten thousand feet, it will not form into the ear,—at least it will not ripen; and below that of four thousand five hundred feet, it runs into straw. Betwixt the altitude of six thousand and nine thousand feet, lies the climate best adapted for the culture of European grain: above the elevation of ten thousand feet, barley may be made to grow, but it seldom or never comes to perfection. Higher than this, grows the potato; and below, on the warmer soils, the plantain, the sugar-cane, the bannana, and the cassave, which is nearly the principal food of the inhabitants.

The Spaniards, in their rage after conquest, and their lust for gold, exterminated nations; but they, at the same time, found means to introduce several foreign plants,—such as the sugar cane, and the coffee tree, which is now cultivated to great perfection. Bread corn, however, is only raised in the more temperate parts of Quito, which is excellent, the wheat particularly so. This grain, however, being necessarily confined to certain places, other food becomes necessary, and that is found in the bannana, &c.

The platano arton, or common bannana, is very rapid in its growth, wonderfully productive, and it is cultivated over a large extent of low ground. In eleven months, or less, from the time of its first planting, it bears a fruit not unlike a cucumber,—pleasant to the taste, and very nourishing. The bannana is of very easy culture, requiring little or no labour, and so productive, that an acre planted with it will support twenty-five times as many people as an acre planted with wheat. This account is given by travellers; but, for my own part, I imagine that the comparison has been drawn betwixt two parcels of ground, each very unfit for the plant put upon it. Be this as it may, the bannana is a valuable article of food; and the ripe fruit, when dried, is esteemed by many, as both pleasant and wholesome.

The next substitute for bread corn is the cassave, or manihot. Of this there are two kinds, which, although they are hardly distinguishable by their external appearance, have very different qualities. The one kind is sweet, and perfectly innocent; while the other is bitter, and contains in it a deadly poison, if eaten raw. This, however, can be remedied, by extracting the acrid juice from it,—which is done by squeezing the root in a bag; it then becomes a wholesome article of food: and what may not seem a little surprising, the juice of the bitter manihot, poisonous as it is, can be rendered perfectly innocent by the application of heat, which destroys its poisonous qualities; and it is often boiled into a kind of brown soup, as a savoury dish to the inhabitants of South America.

In the warm grounds there is also raised the yam, the Spanish potato, the earth nut, with the various kinds of love apples. Maize, or Indian corn, is also cultivated to a great extent on the warm grounds; this grain is the chief support of the cultivators of the soil, and domestic animals. It commonly grows to the height of eight or ten feet; and where it has both heat and moisture, which it requires in a great degree, it is very productive. Drouth, however, it cannot bear; and a dry season, where this grain is the principal article of food, is the forerunner of a dreadful famine. I have seen the stalks in Britain nearly three feet in height, and I apprehend that this grain might be cultivated with advantage, not to raise a seed from it, as this climate is too cold; but there are many situations where it might grow to such perfection, as to become the cheapest article of food for cattle that our present agriculturists raise.

Maize, the grain I mean, is dressed for food in different ways, either roasted or boiled,—and it is often eaten raw, in a green state. Made into bread, some people assert that it is very nourishing; be this as it may, it is certainly not very palatable to those who have been used to other kinds of bread. A kind of gruel is made with the flour of maize, by boiling it into a thin pap, and mixing it with honey, sugar, or the sweet potato. The natives of Mexico once had a method of extracting sugar from the stalk; but since the introduction of the sugar cane, the juice has been more profitably employed, for the purpose of making spirituous liquors. A kind of beer or cyder is made from the grain itself; the grain is not malted, but the quality and nature of the beer depends upon the different stages of ripeness at which the grain is taken.

As mentioned before, wheat is not a native of the equatorial regions, but vast quantities of it is raised in the Mexican territories. Of oats there is a limited supply, the inhabitants not relishing either brose or oatmeal cakes; and the grain is very little used as food for cattle. For this purpose barley is chiefly cultivated, as being a food superior to oats, especially for horses. The inhabitants of Old Spain and Barbary, seem to be of the same opinion; and it seems something strange to me, that the inhabitants of Great Britain do not get into the same way of thinking also.

If the Mexicans are neither Scotsmen, to live upon oatmeal themselves,—nor Englishmen, to give it to their horses, they surely may lay claim to a relationship with our sister isle, from the vast quantity of potatoes which they consume. From the mountains of Chili, where this root was first planted, it has been carried to the high plains of Bagota, and from thence into New Spain. In the neighbourhood of Quito and Santa Fee, the potato is raised in great abundance; they grow to a remarkable size, and are of an excellent quality. The people will sometimes preserve them for three or four years, by destroying the principles of germination. In reference to this assertion, which many a one will be apt to think untrue, it may be observed, that if the germinating principle of potatoes are destroyed, and they are kept from a change of temperature, in a situation neither too moist nor too dry, they will keep for years. But although this root can be kept for a number of years, they cannot be kept in a good state for any length of time; all vegetable productions whatsoever, lose their natural qualities in a short period, however they may be preserved. The Almighty never intended that the produce of the soil should be hoarded up, else why has he blessed us with a harvest every season? Man lives by daily bread,—and to preserve this year's provisions, that we may eat it the next, is in effect saying that we have too much bestowed upon us, and that some of it should be taken away. We seem indeed to be in love with want; and if famine is not on our borders, by the visitation of heaven, many amongst us are extremely well versed how to create an artificial one.

But amongst all the articles of food which I have enumerated as the production of South America, and with which the inhabitants are favoured, there is still another kind, and a strange one, to be taken notice of. The Ottomaques, an ugly and disgusting race of people, residing on the Meta and Oronocco, live principally upon the small fish which they can take with their arrows in shallow water, in the dry season. But no sooner does the rains set in, than these people are obliged to betake themselves to the higher grounds, and these supplies of fish are for the most part cut off; of course they must turn their attention to other fare. Too indolent to provide for a future day, that provision which nature tenders to their acceptance; or rather, having no relish for it, they lay up vast quantities of clay, as a stock of provisions for the rainy season. Whole stacks of this strange kind of food is found built up in their huts, in the same manner that many people of Scotland, and other places, store their dry peats. This earth is first carefully gathered, and the proper kind distinguished by its taste; it is a kind of pipe-clay, very mellow, and of a reddish colour, which it takes from the oxide of iron, with which it is intermixed. After the clay is gathered, it is kneaded into little round balls, of from four to six inches in diameter, and slightly baked before a fire. When this stuff is about to be used as food, it is soaked for a little in cold water, and each person will, on an average, consume about a pound of it in a day. This is the favourite food; but sometimes a few small fishes are found, or perhaps a strayed lizard, that has unfortunately for itself come in the way, is seized upon, which makes something of a variety; and as a dessert to this grand repast, fern roots are sometimes added.

Would it not be supposed that people of this description are a wretched race? we should account them so; but they themselves are not sensible of their own condition. They are situated upon the banks of a noble river, in the midst of a fertile country; they are surrounded with blessings on every side, yet, strange as it may appear, they despise them. That food which nature tenders to their acceptance they wilfully neglect, and make choice of that, which, in our opinion, is more likely to destroy life than preserve it.

The shipwrecked mariner, when he feeds upon the dead body of a once beloved companion,—the hungry wretch who is forced to live upon that offal which the dogs refuse, deserve our pity; there is no choice,—and hunger, what mortal can support it: but the Ottomaque deserves none in this respect,—he lives upon a disgusting kind of food, but it is through mere choice,—and as his food is, so is his disposition.

In the Laplanders we behold rational beings, accommodating themselves to their circumstances, and making the best of a boisterous climate. The Ottomaque is a different being; we behold a people, inhabiting one of the finest countries in the world, throwing aside the various productions of the vegetable kingdom, and betaking themselves to clay, as food to support a wretched existence. But it may be asked, are these people unhappy? do they pass a joyless life through this world?—we answer, No! wretched as they are, they too have their enjoyments. In fact, they present to our view a complete picture of that state of innocence which many visionaries have admired. These people tell us what man is, and what that state of happiness is which he enjoys in a savage state.

The Laplander is a man,—he fulfils the duty of his station, as far as his yet untutored mind, and the infirmities of human nature, will allow him. But the Ottomaque is an odious creature,—giving himself up to the guidance of every brutal and revengeful passion. Of a restless and cruel disposition, he is ever on the watch for mischief, esteeming it the greatest happiness of his life, to take that of a fellow-creature's. He dips his arrow in a deadly poison, and with it attacks every one whom he chooses to consider as an enemy; yea, even with insidious malice, does he anoint the nails of his fingers with the same poison, and in the parting salutation with a friend, will give a scratch, that proves as mortal as the deadly stab.

Such is the picture which many would impose upon us as the perfection of humanity,—such are the people whose condition it is reckoned the height of folly to amend,—such are the beings whose conduct is held up to Europeans for their imitation: but I am straying from my subject. Let those people who have got nothing else to do than find fault with their neighbours' generous actions, be sent to the banks of the Meta; give them six months trial of the Ottomque's condition, with clay for their chief sustenance, and then, perhaps, their maxims of morality may become useful to the world.

CHAPTER II.

Africa.—Egypt.—Abyssinia.—Turkey.—Tripoli.—Morocco.

From South America we turn our attention to Africa, and there we behold the two extremes of barrenness and fertility. There we see the burning waste, and the luxuriant plain; the swampy morass, and the windy desert. Vast tracts of desert land take up a great proportion of that ample continent, which is inhabited by the savage beasts of prey,—the lion, the tyger, and the serpent, while man has taken possession of the more fertile parts.

Egypt was long styled the store-house of the world, from whence other nations brought their supplies when visited with famine, which was of frequent recurrence in Eastern countries. But the most remarkable famine that we ever heard of, was that of seven years continuance, wherein the injured son of Jacob was called from prison to teach the senators of Egypt wisdom. The history of Joseph is one of the simplest, and at the same time one of the sublimest histories that ever was written; what human being can read it without emotion. The characters are natural, and drawn with a masterly hand; every sentence conveys instruction and delight. The history of Joseph affords many an instructive example; but that which every person must admire is the conduct of Joseph himself. How did he behave towards his unworthy brethren, to whom he was indebted for years of captivity, and confinement in a dungeon? Instead of upbraiding them with their past cruelty, his harshest word was, I am Joseph, your brother; and see that ye fall not out by the way, was his parting advice. In reading the wise measures, and the disinterested conduct of the generous viceroy of Egypt, during the continuance of a severe and protracted famine, one cannot help being struck with the opposite conduct of those who, in our day and generation, take it upon them to follow his example. I grant that he laid up much corn; so much, indeed, that they ceased numbering it. But what was his object in so doing, was it to starve his fellow-creatures? No; his object, and that by Divine appointment too, was to save much people alive; whereas our Josephs, (our great corn-merchants I mean) evidently, in my opinion, have the intention of starving as many as possible. None of them, I am persuaded, will have the impudence to assert, that they are commissioned by heaven to provide for a seven years famine, and yet how many of them act as if this were really the case.

As no rain falls in Egypt, it is to the periodic rise of the Nile that this kingdom owes its fertility. The cause of this rise was long accounted a miracle, yearly renewed, as a proof that the Egyptians were the most favoured people on the face of the earth. This opinion, however, is known to be false; and if inundations are a mark of divine favour, other nations were yearly visited with this special mark of it, as well as the Egyptians. Inundations are common to all the rivers of the Torrid Zone; and their periodic swellings arise from one and the same cause, namely, the heavy annual rains between the Tropics.

The Nile must rise to a medium height to produce its due effect on vegetation: either too great, or too little rise, is almost equally hurtful. It sometimes happens that the rise is too much, and the water overstepping its ancient boundaries, sweeps before it, in its impetuous course, towns and villages, with all that they contain. Such an event happened in the month of September 1818, which Belzoni, the celebrated traveller, was an eye-witness to. The rise had been anticipated, from a deficiency the preceding year, and preparations had been made for it. These preparations, however, were quite inadequate for the purpose intended; the waters rose beyond expectation, three feet and a half higher than the mark left by a former inundation. The consequences were dreadful; the feeble barriers of mud and straw, which the inhabitants had erected around their dwellings, were forced at every point. Men, women, children, and cattle, with their habitations, and all that they contained, in one awful moment became the prey of the devouring element.

Famine is the natural consequence of a partial or too great a rise in the Nile; but when the inundation reaches to a proper height, nothing can exceed the fertility of Egypt. Its mud-manured soil brings forth by handfuls, almost every vegetable production common to Europe, besides others that are in a manner peculiar to the climate.

The culture of Egypt is naturally divided into two classes; the one class belongs to that land which is watered by the overflowing of the Nile,—the other belongs to the higher grounds, to which the waters cannot reach, and which must be supplied with masterly artificial means. On the first, or inundated ground, wheat, barley, and beans are raised; but it is said that the best wheat grows at Masaga, a district in Upper Egypt. This soil produces melons, cucumbers, vetches, &c.; the cucumbers, as also the melons, grow almost visibly; in twenty-four hours they will gain a volume of twenty-four inches. This rapid vegetation, however, adds nothing to the flavour of the fruit, having always a watery and insipid taste.

The labour of the husbandman upon this soil is not very great, nor very heavy. After a slight drying, the seed is committed to the ground, in its slimy state, and it soon falls, by its own weight, a sufficient depth, without making use of the harrow. I may add, that the barley of Egypt has six prickles round the ear, and is the chief food given to cattle.

The second class of culture requires more attention, as well as more labour, than the first; the ground requiring frequent waterings, to keep it in a proper state, of course the husbandman's labour must be heavy. The holcus duara is the principal grain cultivated upon that soil not watered by the overflowing of the Nile, and is the common food of the inhabitants of Upper Egypt. This grain is often eaten green, being previously roasted; the stalk is often eaten green likewise, as a substitute for the sugar cane. The dried pith, reduced into powder, is used as starch by the Egyptian ladies, and the leaf is given as food for cattle. When the grain is ground into flour, thin cakes are made of it, which to the natives are very palatable, while new; but it very soon gets stale and disagreeable, especially to an European; and in fact, no preparation of it is agreeable to the taste of a stranger, whether new or stale. Maize is also cultivated to a limited extent in Egypt,—and the lower parts of the country abound with rice, which flourishes remarkably well; but it is not a native of the place, being introduced into the country, from India, under the reign of the Caliphs.

It was not without reason that Egypt, in former years, was styled the store-house of the world; even now, while under a wretched government, and without the least encouragement, the vegetable productions of Egypt are truly surprising. Besides the European grains, there are others transplanted from the other quarters of the globe, as well as some that are natural to the soil, all of which bring forth by handfuls.

Egypt was long famed for producing excellent olives; now they have in a manner disappeared, and they are only to be found in gardens, unless it is in the province of Faioom, where there are still some plantations to be seen. The grapes also, which were so extensively cultivated for the sake of the delicious wine which they produced, are now only cultivated to a small extent, and that only for the sake of the shade, or the fruit alone. The wines that ancient travellers have spoke of with rapture, are now no where to be found; and Anthony, with his voluptuous mistress, might in vain look for the delicious draught. A reason, perhaps, might be given for the disappearance of the wine from Egypt, by the generality of the inhabitants professing the Moslem religion, one of whose tenets forbids the use of wine. It is well known, however, that Mahomet himself never scrupled to drink this favourite beverage, and his followers, in all ages, have made as little scruple to break the most binding article of their creed, if it suited their conveniency to do so. This is not saying much in favour of those people's sincerity in their religious profession, but should we look at home, I am afraid that we would find a vast number of Mahometans among ourselves. As wine in a great measure has disappeared from Egypt, a climate that at one time produced what was termed the best in the world, there must be something or another that is the cause of it. The climate remains the same, and the few grapes that are cultivated are of the same quality as formerly, neither do I think that the cultivation of the grape has been discontinued through religious motives. Were I to hazard an opinion of my own, I would say, that the limited cultivation of this fruit arises from the political and not the religious state of the country. The people are slaves, and it is not to be supposed that they will cultivate that fruit which their imperious masters may take from them in a moment, and at the same time punish them severely for transgressing the law of their Prophet by having such in their possession.

It is something remarkable of Egypt, that none of the European fruit-trees will grow to any perfection there. The cherry, the almond, and the walnut, does not grow at all, and such as do grow, the peach, the pear, the apple, and the plum, produce but little fruit, and that of an indifferent quality. In compensation for this want, the citron, the orange, and the lemon, grow to great perfection. The pomegranate, the apricot, the tamarind, and the fig of Pharaoh, pour forth their treasures in great abundance. The bannana and the date palm, pay a willing tribute, and amply reward the labour (if it can be called labour) of the cultivator.

Of Abyssinia we know but little, and as little of its productions, but we are well aware that the inhabitants have also their food given unto them. From the imperfect accounts which we have of that country, the grain cultivated is remarkably fine, wheat in particular. Almost all travellers that have visited that part of the world concur in praising the fine wheaten bread of Abyssinia, which is exclusively confined to people of quality. Millet, barley, and maize, and a grain called teff or tafo, concludes the catalogue of bread corn.

This grain (teff) is about the size of mustard seed, the skin or hull of an iron grey colour, but when ground, it produces an excellent and white coloured flour, from which bread is made, nothing inferior to that of wheaten. This grain possesses one good quality above that of others, namely, it is indestructable by vermin.

In the gardens of Abyssinia there are a number of fruit-trees, and different species of esculent plants. There is one greatly cultivated, which the natives call ensete, this resembles the bannana, and is generally used as a substitute for bread by the common people.

An Abyssinian great man at his meals, in his own opinion, is one of the greatest men upon earth; in other words, he is a proud and indolent mortal. Nature has given him hands, but to use them in conveying victuals to his mouth would be derogatory to his honour, and he must have a servant or two to feed him. Infants in this country require to be fed, but it seems that an Abyssinian lord demands this service, or rather, as we would say, indulgence, all his days; of course he remains an infant as long as he lives.

A favourite dish with the Abyssinians is raw flesh, with the blood newly drawn as a sauce, and their refinement in this matter has reached to such a height, that they will at times cut a piece of flesh from the living animal, and with infinite satisfaction eat it up, while the poor brute is standing bellowing beside them. All nations, I believe, are fond of music, and many people must have it every day at dinner, but an Abyssinian concert would not, I am persuaded, be relished by the greatest of our European gormandizers.

So much for the Christian inhabitants of Abyssinia and their favourite fare, but what is that of the savage—worse instead of better. The Gallas live upon raw flesh, exclusive of almost every other kind of diet, and they certainly are a disgusting set of people, as bad, if not worse, than the Ottomaques. In war they smear their faces with the blood of their enemies, and hang their entrails round their necks, or weave them among their hair. Becoming ornaments indeed! But perhaps these gentry reap more real satisfaction from this proof of their finery, than others do that are glittering in their pearls.

The Shangalls, another savage tribe, are not quite so bad, but indeed there is little difference. The nature of the soil these people inhabit, prevents all agricultural operations, being for one part of the year covered with water, and in the other baked and cracked into chinks by the excessive heat of the sun. However, these people are not destitute of food, many of them live upon the flesh of the elephant and rhinoceros, others again on that of lions and wild bears, while another tribe live upon locusts, or even serpents, at a pinch. So that, if the supposition is true, that the nature of man corresponds with the nature of the food he eats, the Shangalls must be a precious pack of robust, cruel, malicious, and even cowardly fellows.

We now turn our attention to a more civilized race, at least they wish to be thought so, I mean the Fezzanese. These people inhabit a genial climate, but it must be confessed that nature does more for them than their own industry. The only grain that is cultivated is maize and barley; of wheat there is but little, not enough indeed for their own consumption. They are indebted to the neighbouring nations around them, especially the Arabians, for a supply of this useful grain, which they exchange for their own natural productions. Perhaps it may be inferred from this circumstance that Fez is a poor country, but this is not the case; if the people are under the necessity of importing grain, they must give something for it, either goods or money, in return. We will say that it is goods, these goods must be of their own production; or if money is given, that money is obtained in the first instance from the produce of their own soil. Wheat will grow in the kingdom of Fez as well as in any other part of Africa, but if the inhabitants can raise as much of other articles upon an acre of ground as will purchase the wheat of two in a neighbouring nation, they certainly would be reckoned fools if they did not do so.

The words import and export are but very little understood, and as long as people pay more attention to their own interest than the public welfare, they never will be understood. When a nation has the balance of trade in its favour, whatever may be the article traded in, that trade should be encouraged. The quantity of any article, either exported or imported, is nothing; it is the value of it that we should judge by, and what return of profit it gives to the importer or exporter. It certainly is a political truth, whatever we as politicians may think of the matter, that a nation ceases to flourish as soon as its exports exceed its imports in value, but it is seldom that this matter is taken into account by our political economists, who generally make the receipt of the custom-house the criterion of national prosperity. But it must be obvious to every one the least conversant in the matter, that this is no criterion at all; the entries at the custom-house may be great, and at the same time the balance of trade against us; and when the individual loses (I mean upon a foreign trade) it is evident that the nation loses also, although the receipts at the custom-house may be high. But to return to our subject:—

Dates are in great plenty in Fez, and, in fact, are the staple commodity of the place; figs, lemons, and pomegranates, are in great plenty also, and there is no want of culinary vegetables.

The Tripolitans, although they possess but an indifferent climate, or rather, more properly speaking, an unpleasant one, are yet blessed with a tolerably fertile soil. Of the bread-corn produced in that country we can say but little; however, there is abundance of culinary vegetables, and the fruits approximate nearly to that of Fez, both in number and quality.

The empire of Morocco is celebrated for its general fertility, but the inhabitants do not seem to pay much attention to agriculture, and in fact it is almost neglected. This arises rather from the want of purchasers, than any other cause, as more grain is raised than what is equal to the demands of the people. Where the population is small, as in the case of Morocco, agriculture will always be neglected; the home market is the best for the farmer in every nation, and a wise government will always turn their attention to the increase of a healthy population, as the only means of protecting the agricultural interest, and rendering themselves independent of foreign supplies. Exportation, indeed, may take the surplus produce off their hands occasionally; but this is so liable to be interrupted in various ways, that at the best it cannot be depended upon. The inhabitants, or rather the agriculturists of Morocco, sometimes resort to exportation, but, from the neglected state in which agriculture has been placed, it is seldom that they have much to spare. Wheat and barley are cultivated to a limited extent, but oats are a native of the country, and grow without culture. The olives of Morocco are esteemed the best in Africa, if not of the whole world; the citrons and oranges are also in much repute.

Morocco possesses a great extent of territory, naturally fertile,—but there are vast tracts which may be termed sandy deserts; yet, strange as it may appear, this desert land is the only soil that receives any particular attention from the agriculturists. A stranger, passing through the country, will naturally take the agriculturists for a parcel of fools, when he beholds them neglecting that soil which is naturally rich in itself, and giving an undivided attention to those sandy plains,—watering them with infinite labour twice or thrice a-day. But this impression will soon wear of, upon inspecting the crops that are raised upon these desert spots. This sandy soil is set apart for the cultivation of melons, cucumbers, and other fruits of the same kind, which are always of a finer quality, when raised from a sandy soil, with sufficient heat and moisture. This points out the impropriety of judging from first appearances; in this instance, what at first sight appears to be consummate folly, on a closer inspection, is discovered to be both a knowledge in agriculture, and wisdom to direct that knowledge to a proper end.

CHAPTER III.

Guinea.—Congo.—Islands of Africa.—Cape of Good Hope,—and China.

The scarcity of an article makes it valuable, and if we turn our attention to Guinea, we will find full proof of our assertions. In that country the alimentary plants are in great abundance, the sugar-cane in particular; and so little is this plant thought of, that it is chiefly raised to feed hogs, buffaloes, and elephants. Three different species of holcus are cultivated, and rice in considerable quantities. Maize is also to be found, but is not a native of the place, being brought originally from America.

The Portuguese have imported into that country various fruit-trees, such as the orange and the passaw tree, likewise that substitute for bread, the bannana, all of which have multiplied to an astonishing degree, and produce fruit in great abundance and perfection. In the forests, various species of orange-trees are to be found, with the pomegranate, the citron, and the pea-tree. From one species of tree, tallow is collected, and another produces oil, with an inferior kind of butter. But the proper butter, or, as it is called, the shea-tree, is to be found in great abundance, and is in itself a valuable article of commerce, forming the chief wealth of the kingdom of Bambook.

The baotub-tree produces a large kind of fruit, one of which is sometimes enough for a man to lift from the ground. This fruit is termed monkey's bread,—and although rather coarse in quality, is used by many of the negroes as their principal food. The tamarind and the cocoa-tree also pay a willing tribute, and produce an excellent article of food for the use of man.

Potatoes are remarkably good, and it is believed that this root is indigenious to the soil. The yam and cassava are also natural productions,—and the pine-apple grows without culture in the most desert and neglected places.

In the kingdom of Congo the vegetable productions are in great plenty; the holcus of every species grows without culture. I have often mentioned this grain in my preceding remarks, as being cultivated in many places as an article of food, and it certainly is a valuable one. Great Britain indeed cannot boast of its production, but it is not unknown, being sold at a very high price, under the name of millet. That species which is reckoned the most productive in Congo, is called by the inhabitants, mafringa.

This species of holcus or millet bears an ear of a foot long, weighing from two to three pounds each, and is highly pleasant both in taste and smell. Maize, or Indian corn, is raised in that country chiefly for the purpose of feeding cattle. Rice is plentiful, but little thought of; millet, in the opinion of the people, being preferable to it. Wheat at first did not succeed; this probably arose from the circumstance of the seed being committed to an improper soil; for though it is a hardy plant, great care is requisite in transplanting it from one country to another. Indeed this observation may be applied to all vegetable productions whatsoever; all hurried transplantations are sure to be hurtful, and every change should be brought about by degrees. Every plant, of whatever description, when transplanted from its original soil, should have its first seed-bed as near as possible of the same nature and position as that which it was taken from. A want of this consideration has, I am persuaded, been productive of many miscarriages in agricultural operations, both in this country and elsewhere.

The luno, the same as the teff of Abyssinia, was originally brought from the banks of the Nile to the kingdom of Congo, where it is cultivated to such an extent, that it has become almost the common food of the people. The potato, brought from America, has greatly improved in quality; and Congo, at the present day, can boast of that root superior to any in the world. The cassava is also cultivated; this too was brought from America, and is used, as in other places, as a substitute for bread.

With the European pot-herbs, which grow to greater perfection than in their native soil, there are also others peculiar to the climate. In particular, there are two kinds of pea, one of which grows under ground, and another upon a shrub. There are also several species of small beans, which being planted in the rainy season, give three crops in six months.

The fruit-trees of Congo are numerous; the most useful perhaps is the cocoa, and the different species of palm; the palm-tree indeed is reckoned by far the most valuable, one species of which produces an excellent wine. The conde has a fruit of the shape of the pine-apple; it is of a nourishing quality, white and delicate in its appearance. This tree is to be found no where but in southern Guinea, but whether it will flourish or not in other places has not yet been ascertained.

On whatever spot of that part of the world we cast our eye, we find nature in her gayest dress,—but do we find the people more happy on their various and spontaneous productions, than those of a seemingly less favoured climate? No, we do not; amidst all the balmy blessings that an indulgent Creator has bestowed upon his rational offspring, one hideous monster starts up, and with its horrid aspect, deforms the fair face of nature. It is the land of fertility, but alas! it is also the land of slavery; and, shame to the enlightened age of Christianity, Europe still boasts, O injured Africa, of holding thy sons in chains!

The palm-tree, O Africa, is thine; beneath whose wide spreading foliage thy sons might repose in pleasure; but safety is not there. Rich are thy plains in vegetable wealth, but the work of the husbandman is arrested by the ruthless hand of the oppressor. Men, who claim their birth from that land whose air is too pure for a slave to breathe in, visit thy verdant plains to commit the greatest of all crimes,—to drag thy children into bondage. Now what avails thy genial climate,—what to you, O Africans, are the gifts of your Creator? ruined villages, and deserted fields, point out at every step the path of the destroyers; and the groans of age,—the infants cry, —the mourning of the bereaved wife,—and the lamentation of the fatherless, proclaim aloud that the *enlightened* and *tender-hearted* Europeans have been there! Europeans! Children of my native land, by what right do you hold the African in chains? Is he not a man,—is he not a brother? What although the sun has looked upon him, and he is black; can complexion obliterate the feelings of the soul, and throw a miserable turpitude upon man? No; but O beware! what was Europe when Hannibal led his armies to the gates of Rome? and perhaps the time is not far distant, when the injured sons of Africa, asserting their native dignity, will rise superior to their now imperious masters:—but to return to our subject.

The Islands of Africa, when first discovered by the European nations, were in general found to be destitute of bread-corn, but this want was supplied, I had almost said more than supplied, by the vast quantities of fruit with which these islands abound. The cocoa, the mango, the orange, lemon, and tamarind, grow in great profusion,—as likewise the bannana and the sugar-cane;

yet the people that inhabit these islands do not seem to be more happy than their neighbours. If we look at the natives of New-Holland, what is their condition with respect to food; they are happy, I grant, but from whence does this happiness proceed? Merely from a contented disposition; or rather, as we should say, from indolence. From whatever cause it arises I know not; but this I am sure of, that there is not such a contented race upon the face of the earth, as the New-Hollanders were found to be when the English first went amongst them. They had neither bread, nor bread-corn, nor any vegetable production to serve as a substitute, and yet they were contented. The English seamen offered them bread,—this they threw away with the utmost indifference; of fish they would take none, and the flesh of fowls was the only food that they seemed to relish. If this bill of fare shewed a circumscribed list, their other conveniences were as few; in the account of clothes they had none,—their dwelling was the hole of a rock, or the hollow trunk of a rotten tree,—and their bed, that which nature provides in almost every climate—the grass of the field.

Diogenes,—had the cynic been there,—had he in his zeal to circumscribe the bounds of luxury, visited the shores of New-Holland to propagate his opinions, he would certainly have discovered that his maxims of prudence were superfluous, and that he himself abounded in superfluity. The cynical philosopher threw away his dish, when he saw a man drink with the hollow of his hand; but the New-Hollanders would have taught him, that even he himself, when in possession of his tub, held more than what was necessary to support the life of man, and that his garments, homely as they were, were of no avail, as there were human beings who could subsist without them. He would have seen in New-Holland, a race of people who lived without clothes, without a dwelling, and even happy and contented without food, with the exception of a few small shell-fish which hunger occasionally prompted them to pick up from the beach. What a lesson is this to our ravenous gormandizers, who are never satisfied, when even Diogenes himself could have learned from these people the precepts of temperance. But of temperance, no matter; it is a virtue well understood, but its precepts are too rigid for the observance of Christians, and our public teachers; it is example, and not precept, that we want: we follow the example, and give the precept to the wind. Is this deemed severe? It may be so, but it would have been highly satisfactory to the writer, could he with conscience have passed the same sentence upon what he has written himself.

We next turn our attention to the parts around the Cape of Good-Hope, or rather those various tribes that inhabit Caffraria. These people have also their portion of good things, although various are the kinds of food that is peculiar to each tribe. The Koussa tribe possess a fertile soil, but neglect agriculture in a great degree; millet and maize being the only grain which they raise, and of this but a very small quantity. The want of grain does not arise from the nature of the soil, but from the indolence of the people, who prefer the breeding of vast herds of cows to the more laborious parts of husbandry. These cows are of a remarkable fine breed, giving a great quantity of milk, which, in a state of curd, is the chief support of the people.

Of fish, these people have more than enough, as they will not eat them; and the reason which they give for rejecting this fare is, because these creatures resemble serpents. The only animal that they make use of is procured from their own herds, but it is seldom that they can find in their hearts to indulge themselves in such a glorious repast, which consists merely of the flesh roasted, and eaten without salt, or any other sauce whatsoever. The flesh of the tame hog is held in abhorrence, as these creatures live upon every kind of filth; hares also come under their malediction, as they assert, that shortly after any person eats of these animalcule they soon grow mad; ducks and geese are at the same time rejected, for no other reason but that they have a disagreeable voice, and puts them in remembrance of that disgusting animal, the crawling toad. Every man to his own taste, and every nation to their own manner; but if such ideas were to prevail amongst us, what would become of our sporting gentry? Were the idea relative to hares but true, it would take one half of our national income to provide places of security for those that would run mad, and we would not be able to procure wise people to take care of them.

The Maquinis tribe seem to be very moderate in their desires after food, living almost upon the curd of milk when at home, and when abroad their sustenance is what they can procure at the chace. Like the Koussa tribe, they will not taste fish, and very seldom killing their own cattle, but they scruple not to eat the flesh of the wolf, fox, and cat. The rhinoceros and the hyena are with them a favourite dish, and it is said that they can make a hearty meal even from human flesh. It is very likely, however, that the last assertion is not altogether correct; that they eat what we esteem as carrion, is no proof that they regale themselves with the flesh of the human species. Were we to come to this conclusion, we might assert the same of the polished inhabitants of the celestial empire, as with them what we call carrion is a dainty fare, and even rats are a saleable article in their public markets.

By the bye, the Chinese, in their own opinion, are the most polished people upon earth, and the most ancient too, if their own records are to be credited, which carries them back some thousand years before the flood. How these people managed to escape from the dreadful effects of that first and only universal storm that ever blew, puzzles me to know; and I dare say that the wisest amongst themselves will be as completely puzzled to explain how or by what means they kept their records, and upon what stuff they were written before that period.

But whatever may be the national vanity of these people, it is of little consequence; they may date the foundation of their empire prior to the birth of Adam if they please, while they leave us the power to contradict them if we think proper. Of this indeed we are certain, that from time almost immemorial, they have been a peaceable people, and inhabit one of the finest countries in the world, producing vegetable productions in great variety, bread-corn, &c. All the European spiceries are cultivated, but rice has the greatest repute; of rice there are two kinds raised; the best, or white species, is planted on the low warm soils, and give two crops in the year. The other species, which is less in the grain, blackish in the colour, and of a disagreeable taste, is planted on the higher grounds, and give only one crop in a twelvemonth, and at the same time requires a deal of labour to bring it to maturity.

It may be asked, why is this species cultivated, when it is of such an indifferent quality, and gives such an indifferent return in comparison to the other species? It may be answered, that the white rice will not grow upon the high grounds, the soil being too cold, and the moisture deficient, and although other grains might he raised, and that with advantage, upon the same soil, yet the Chinese prefer this black rice, bad as it is, to any other kind of grain. This, no doubt, is owing to prejudice, even as the inhabitants of Britain some ages ago, and some of our own country people at the present day, are prejudiced against the use of wheaten bread.

The tea-tree is exclusively a native of China, and that not of every province, as it is only brought to perfection in some particular places. All the different kinds of tea that is brought to this country are the leaves of one and the same tree, the difference of quality arises from the local situation of the plant, and the different periods at which the leaf is gathered.

This tree is a mine of wealth to the Chinese, and they in fact supply the whole world with this now indispensable article of food. It is not yet decided by our learned men, whether tea is a poison or a medicine; for my own part I will not take upon me to decide this weighty matter, but if tea is to be used, (which I have no objection to), my advice is, that a sufficient quantity of good bread should be taken with it.

It is natural to think that the Chinese use a great deal of tea themselves, and in fact they do so, but the manner of preparation is different from ours. A certain quantity is put on the fire with cold water every morning; after boiling about twenty minutes, the liquor is drawn off into another vessel, and placed at the side of the fire to keep it warm, and is then the common drink of each family for the whole day. Sometimes sugar is added, but as often it is not; and what may seem not a little surprising, those people that are employed at the porcelain furnaces, drink tea impregnated with common salt to allay their thirst while at work. I cannot recommend the adoption of this practice, but I have seen some people use ginger instead of sugar, and those who can do so, will find this tea diet a great deal the cheaper of it, and nothing the less wholesome.

The European grain that is cultivated in China is of an excellent quality, and the fruit-trees come to great perfection, as well as in that of tropical climates. There are an abundance of the wax, oil, and tallow-trees, the value of which these ingenious people are well aware of. Of culinary vegetables the quantity is profuse, in some provinces the greater part of the inhabitants live upon them. One species of the Chinese vegetables (a radish) might be a useful article to introduce into Great Britain. This radish is extremely rapid in its growth, and a hardy plant; but independent of its use for the table, the seed of it produces an excellent oil, fit for any domestic purpose. Three pounds and a-half of this radish seed, when properly cultivated, will give a return of two hundred pounds of seed, from which one hundred pounds of oil may be extracted.

CHAPTER IV.

Hindostan—Turkey in Europe—in Asia—Russia—Ireland—Great Britain —Concluding Reflections.

Leaving scientific China, where even the manners of salute is regulated by an unalterable law, we may just, in passing, give a glance at the plains of Hindostan. Rice in that part of the world is the staple grain, but there is no want of other kinds, with fruit of every description, as well as culinary plants. The Hindoo agriculturist is a reproach to many of our British farmers; he is patient in fatigue, and moderate in his fare; from sun-rise to sunset he is in the field, with patient assiduity does he attend to his daily labour, and not a single weed will he suffer to escape him. At the hour of dinner, his wife (if he has one) carries it to him, he looses his cattle, refreshes himself with what his wife has brought him, while she remains at a respectable distance until he has finished his repast; when done, he takes an hour's repose, begins his labours again, and continues his work until the shades of night fall upon him.

India, although in general it is a fertile country, is sometimes visited with famine, as often from the villany of man as the visitation of Providence; there are unprincipled speculators in India as well as in other parts of the world, who know how to take advantage of a deficient crop.

The banks of the Senegal present a luxuriance of herbage that is not surpassed in any part of the world. But here the serpent takes up his abode, and the wild beasts of the forest run at large, repressing the audacity of man. At the same time the climate, to an European, is an unhealthy one, which is imputed to the rank herbage that every where abounds. There is no doubt but that the climate is greatly improved, and is more healthy than what it was. This may be imputed, in a great measure, to the gum-trade, which, for this some years back, has been carried on to a great extent. This gum, by the bye, is one article of food which is used in this country; the gatherers of the gum living almost upon it while employed in this labour.

We may now make a descent upon Europe, by far the most considerable portion of the globe, not from its size, which is inconsiderable, compared with the other quarters of it. But in its people, its learning, laws, and government, it surpasses them all, and has done so for ages.

Turkey in Europe is one of the most fertile spots, but in the possession of an indolent race of people, if we consider them relative to the arts of husbandry. To agriculture they give little attention, although the soil is capable of bearing the greatest crops. In the hands of an industrious race, Turkey would become the garden of Europe; but, in possession of the Turks, it barely supplies them in many seasons with the necessaries of life. This may be imputed to the Government; and it will always be found, that under a despotic ruler, agriculture will be in a measure neglected.

It is rather out of the way in this place to take notice of the Asiatic provinces of the Turkish empire, but in general, one observation may serve the whole. Their vegetable productions are nearly similar both in Europe and Asia. Their bread-corn consists of those common in Europe, besides others which are not, such as rice, millet, &c. Constantinople is mostly supplied with wheat from the Crimea, which is reckoned the finest in the world. The fruit-trees are numerous, and the fruits of an excellent quality. Grapes are cultivated not only for the sake of the fruit and the cooling shade, but also to make wine. The great folks in Turkey, as well as the great folks of other nations, can transgress the laws of their religion with pleasure, although they take care that their poorer brethren shall not do so.

The vast empire of Russia comprehends under it various climates, from the fertile plains of Poland to the snowy deserts of Siberia. As the climate is various, so is the food of the inhabitants. It is related of the Russian sailors, that, when their fleet lay in Leith Roads, they used to steal the oil out of the street-lamps in and about Leith and Edinburgh to sip it. Many of them are still fond of the same delicate fare, and a delicious mess is often made from a fish newly drawn out of the sea, without any cooking, but simply (sometimes only) washing it with salt water.

But this is not the food of all, as the people get more civilized, they of course get more refined in their manners, and, as a natural consequence, they begin to look after a much finer article of diet. A Russian table is now set off with every delicacy that the four quarters of the world can produce.

Hungary at one time was like a watered garden, but the progress of the Turkish arms almost transformed it into a desert. To use their own expressions, before them the ground was like the garden of the Lord, behind them a burning waste; and for a considerable period did it remain so. The bread-corn is the same as that of Britain, and agriculture is more attended to than in former years. Poland, ill-fated Poland, is now bloated from the map of Europe. Three crowned heads united to do a deed that in any nation would have brought private individuals to the gallows. The Poles were a brave and a virtuous set of men—they wished to be ruled by their own laws—their virtue was a crime—their laws recognised the principles of justice, and therefore could not be borne with—besides, their country was a fertile one, it was a temptation that conscientious royalty could not withstand, and the nation became a prey to avaricious and royal conveniency.

Was it any wonder that agriculture should be neglected? Where was the excitement to improve the soil, when the people reflected that the name and nation were taken from them? That foreigners ruled over them with tyrannic sway, forcing them to sell their grain at a reduced price, and even to accept of spurious coin in payment! This was the policy of one of their devisers to impoverish the country, which was bad enough, had he stopt at this, but what was the next attempt? After the small supplies which they were allowed to keep were exhausted, they were ordered to the imperial granaries to purchase for themselves; their own grain advanced in value a hundred per cent. This, however, was not the worst of the matter; that coin which the people were forced to accept when they were sellers, was now discovered to be counterfeit, and the emissaries of Government refused to take it; of course the people were reduced to beggary and to want, and when in this condition, a new mandate was issued forth by their oppressors. This mandate was an order for every hamlet to furnish a certain number of young women, with a suitable dowry, as wives to the merciful soldiery of Prussia. The command was imperative; numbers of these unfortunate young women were marched off under a guard of soldiers, as if they were felons of the worst description, torn from their bosom friends, from their native land, from the companions of their childhood, and many of them from the betrothed husband of their youth; and yet their oppressor was called Great.

It is to be hoped that such a shameful action will never again disgrace the annals of Europe, nor stain that fair portion of the earth called Christendom, but that justice and mercy will become the ruling principle of the governors of the world; then may we hope that the neglected places of the globe will emerge from their obscurity, that the artificial desert will be fertilized, will blossom and bring forth in abundance those productions which has been appointed for the sustenance of man.

Such a thought is exhilerating to the philanthropic mind. But Poland—the division of kingdoms is arbitrary—yet, little as we think about the matter, the boundaries are marked out by the sword of the conqueror, and indelibly stamped with human blood. War was the path that led to glory, its attendant evils—devastation and ruin, the wreath that encircled the brow of the conqueror—and a man became great as he learned the art of destruction. Those days of bloodshed and treachery have passed away, they leave a sad remembrance behind them; yet it is cheering to the soul to think that there is a moral possibility that they will never return—so far for digression.

When we speak of Poland and its agricultural produce, we only repeat what is known to almost every one. In fact, there are few into whose hands this work may fall who are not acquainted with every production of Europe; I therefore deem it an unnecessary waste of time to enumerate them over, and will conclude this present Book with a few reflections.

We have thus taken a cursory review of a few spots upon the surface of the earth, and in every place where we have been (in imagination) we may trace the finger of Omnipotence. The wants of all are supplied; it is true that there are differences in every climate, and every one has something peculiar to itself which the others want; but this argues no partiality in the distribution of Divine Providence. No; it is a call to man to indulge in the sympathies of charity, as climates are, so is every individual of the human species; the talent that I am destitute of, my neighbour has it in possession, and why should I envy him that which is the gift of God, and was given for the benefit of mankind? Does the diversity of climates, and their various productions, not point out also the benefit of commerce? Yes; it is commerce that ameliorates the world, that makes the production of every climate ours, and at last will bring every individual in the world to acknowledge themselves the members of one great family.

In our review, many will be apt to think that Great Britain makes but a sorry figure when her climate and productions are compared with those of more southern nations. It is true we are naturally in want of many luxeries which others have, but these we can procure by our industry, and every necessary of life is ours. We cannot boast of the juice of the grape, but go to the south of France, one word serves for the character of their wines. It is good, but their water, a discourse of half-an-hour is barely long enough to give its good qualities to the thirsty stranger. Our mines of silver we cannot boast of, and those of gold are exhausted; but we have a metal more precious at our command, without which gold is of little value. It is true that we cannot boast of those immense forests that cover the extensive wilds of America, but our coal-mines supply us with a better and more enduring fuel. I have heard this question asked—"Does coal grow in mines?" It is a question not worth the answering; perhaps they may not, but before they are exhausted, perhaps the world may be at an end. This we know, that generation after generation must pass away long before such an event takes place; and who knows what changes may take place in the world before that time. But these are speculations with which we have nothing to do; our duty is to do all the good that we can to ourselves and our fellow-men, and not to enter into abstract reasonings about the probable failure of coal some two or three thousand years after this.

Take it in all, Great Britain, it must be confessed, is a favoured nation, and she holds at present a commanding situation in the world. But this, many will say, arises from adventitious circumstances, independent of any material advantage. Be it so, I will not dispute the matter with those who ascribe every thing to chance and fate, for we will never agree. But view Britain as she really is, in her situation, in her people; what she has performed,—in her laws, her manners, and her government,—her productions, natural, acquired, or artificial, and then say whether or not she is rightly termed the envy of the world.

We say again, that there is not a spot upon the face of the earth, however desolate it may appear, but there the footsteps of the Almighty may be seen. He gives life, sustenance, and enjoyment unto man, as well as the inferior creatures. In every climate man has fixed his habitation, and in every climate he can procure sufficient food, if he chooses to put forth a due exertion, and no unnatural means are taken to create an artificial famine.

There is a seeming inequality in the distribution of the bounties of Providence, but place or station cannot add to the happiness of man. The Indian sits under the spreading branches of the palm-tree, and lives upon the most delicious of fruits ; while the Greenlander is as happy in his native snows, and finds as great a luxury in the rein-deer, the seal, or the whale. The native of New Holland, naked, and picking up a scanty subsistence upon the beach, feels as happy as the more refined Asiatic, dressed in his silks, and sitting at his sherbet or his coffee. Nay, he is as happy as the European himself, who ransacts the four quarters of the globe, and employs about five hundred people before he can take his breakfast, and make a fashionable appearance in the drawing-room.

In whatever clime man is to be found, he, out of choice, prefers that food to which he has been accustomed, and which his own soil or sea produce him. To us Britons, the favourite food of these people around the Pole would be quite disgusting, and no less nauseating would the productions of India become, were these to be forced upon us as our daily food; as foreign luxuries we take, and as such they are relished, but take away that name, and impose them on us as our daily food, we will soon petition to be restored to our homely fare again. It is wisely done, and a proof of the existence of a Divine Being, that the food of man is suited to the nature of the climate he inhabits. In what state of health would the inhabitants of Lapland remain, were the fruits of tropical climates to be given unto them ; or, could the natives of India subsist upon the flesh of the whale or the seal?

The favourite food of each nation is their own productions,—foreign articles soon pall upon the taste. They may serve for a dainty at a time, but the constant use thereof soon grow tiresome, and we return with the greater relish to that which can be got at home.

BOOK II.

CHAPTER I.

The First Farmer—The Introduction of Agriculture into the World—Its former degraded state—The difference at present—A Gentleman, what is meant by the word—Liberty the cause of it.

THE first farmer upon record was the eldest son of Adam, and little has his successors to boast of his generous spirit; but this is little to the purpose. The age of the world, or of nations, may be divided into three epochs; the first is, when man is content with the fruits that the trees spontaneously produce, and finds them sufficient for his support; the second is, when these fail, or is inadequate to his demands, he is then obliged to commence hunting, and live upon the wild beasts of the field; the next epoch commences when he is obliged to resort to agricultural operations to procure him subsistence from the soil.

The first of these epochs marks man as simply in a state of nature, living without rule, or law, or any thing but his own will to regulate his conduct. The second marks him as beginning to assume a superiority over his fellow-men, and, like Nimrod, becoming a mighty hunter before the Lord, the tyrant of his species, which leads on to the third period spoken of. The Grecian fabulists ascribe to a divine personage (one of their female divinities) the honour of introducing the knowledge of agriculture to the world; but it is highly probable that the divinity here mentioned was necessity, commonly, but in my opinion, falsely termed the mother of invention. Hunting in our own country, and in our own days, is merely a recreation, requiring address, it is true, but not that boldness and fearlessness of spirit requisite in the olden time. Hence it was, that those who betook themselves to what is termed the sports of the field to procure sustenance, were men of a bold and determined character, and those who were not so would naturally crouch under them to procure a part of those supplies which, with danger and toil, had been procured. While a sufficiency could be found with but little trouble, this supply would be granted; but no sooner would these supplies fail or become difficult of procuring, than the natural answer to the usual request would be, procure it for yourselves.

Man must be supplied with daily food; and when the usual supply is cut off, he must turn his attention to another quarter: on this supposition we say, that the increasing number of inhabitants required more food than what the trees or the labours of the chace supplied. Now, it is evident, that when a scarcity of food took place, the stronger would supply themselves, leaving the weak to shift about as well as they could. Hunger, they say, has no law; but the idea of coercive force in this instance is absurd, as the stronger still held what they could procure, of course the weaker had to resort to other means than force for the preservation of their lives; these means were, to eat the seeds of those grains which before sprung up unheeded among their feet. A little time would convince them that these seeds were a more wholesome, and at the same time as nourishing a diet as that procured by the chace, and means would be quickly devised how to procure a daily supply.

Such is a short outline of the introduction of agriculture into the world, although the account is not graced with Grecian eloquence, nor the information drawn from heathen Mythology. It appears then from this statement, which, on investigation, will be found correct, that the first agriculturists were of the very lowest of the people; in fact, those friendless poor fellows whom their stronger brethren oppressed. For many ages, this continued to be the case, and in all nations the agriculturists were held as the most degraded characters, at least every other class held them under subjection.

We need not ransack the volumes of ancient records to find a proof of our assertion, nor traverse the distant nations of the earth for a confirmation thereof; we have only to look to our own country, and to a time not very distant from our own age to find sufficient proof. What was the state of agriculture in the time of John king of England? This, it may be said, is going beyond the limits of modern history; I grant that it is, but great stress has been laid upon that period, as being the time when freedom first dawned upon England, and consequently the period when the agriculturists were emancipated from bondage. But this, in fact, was not the case, the famous deed of Magna Charta secured freedom only to those who were already in possession of it, that was the barons of the realm, and not to the lower class of the population, who were still held in vassalage.

The agriculturists at that period were the slaves of their lordly superiors, or bond-men to the fathers of the Church, a race of men who, in all ages, and of all persuasions, generally give as much attention to their own temporal comforts as to the spiritual distresses of their flocks. I do not say, that under the spiritual control of these professed messengers of peace, the agriculturists were in a worse state of bondage than those immediately under the barons of the land; but this argues nothing in favour of the freedom they possessed. They still were slaves, and continued so until the extension of commerce instilled the principles of freedom into the minds of the people, and the glorious light of the Reformation dawned upon the land.

Under the scourge of despotic power, and bound with the cords of a base superstition, the mass of the population were as nothing in the estimation of the mighty *few*, who in most instances lorded it over them with tyrannic sway. I speak in reference to England; Scotland was even in a worse condition, and behind her sister nation a full century of improvement.

On the plains of Rummede, it is said that the banners of freedom were first unfurled on the soil of Britain; with respect to the nobles of the land this was true, but it was not until commerce began to flourish, and the reign of Henry VII. that the common people began to taste the sweets of liberty. Before the extension of commerce the agriculturists of Britain were held as the lowest of the low; in fact, they were the servants of servants; yea, only a few years has passed away since they were held in very little estimation. Lately they held but a subordinate situation in the country, incompatible indeed with the value of their profession, that has for its object the support of the human race.

Whatever may have been the past opinions of the world, a husbandman is one of the greatest characters that treads upon the face of the earth, could he be contented with such a distinguished appellation. I am not now going to inquire why a change of sentiment has taken place; but certainly there has been such a change, and the agriculturists of the present day, in my opinion, are ashamed of the honourable title. They have (with deference be it spoken) by their conduct, thrown this title aside as unworthy of their acceptance; and assumed another, in modern times more flattering indeed, but of a very dubious complexion —our agriculturists now are all gentlemen.

What the precise meaning of this word is I never could learn; it is applied indiscriminately to virtue and to vice, if wealth is in the way; the highway-man, who amasses a fortune by robbery and murder, and lays it out upon landed property, is a gentleman. Is this a title to be sought after; yet our agriculturists wish to pass as gentlemen. The pettifogging limb-of-the-law, who gains the world on the ruin of his fellow-men, is a gentleman; do our farmers wish to rank themselves amongst the oppressors?* A gentleman! The greatest scoundrel in existence may claim the title, if he has but a moderate share of this world's wealth. Do our agriculturists wish to have it also? All of them, it must be confessed, rank themselves as gentlemen; to this I have no objection, provided the term was a specific one, and we knew what was intended by the word. Did it imply an upright, a generous and disinterested conduct, then let every one, however poor, receive the title that deserves it; but, when the term is applied to a certain portion of wealth, and not to the conduct of the individual, I question much the propriety of our agriculturists of the present day receiving the appellation, when their general assertion is, that they are on the brink of starvation.

Whether this assertion is true remains to be proved; it does not seem to favour much of the opinion that they are the chief support of the State. We have been assured of this, however, by their friends and themselves, at the very time they were telling us, that their yearly returns would barely support their families. The assertions here made implies a complete contradiction, but the latter assertion, as stated, that they are the chief and only support of the State, I positively deny. It is granted that their labours are useful, highly necessary, but they should recollect, that although their labours are necessary for the support of the individual, yet, in a national point of view, it is to commerce that Great Britain owes its greatness, and them their own importance in society.

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* I hope this expression will give no offence; it is not levelled at the honourable part of the profession, many of whom are an honour to human nature, and would scorn to pocket the gains of injustice.

I know well that this will be denied, and scouted as a libel upon the whole body of British agriculturists; but let them produce one example since the creation of the world, of a nation neglecting its commerce, and the agriculturists above the condition of day labourers, and I will give up the point at once. But before this proof is given, I must, for my own part, still retain the opinion, that instead of the agriculturist being the support of the State, the reverse of the proposition is true, and that if commerce had not been fostered, and mercantile men possessed of a bold and enterprising spirit, the agriculturist of the present day would still be in the humble condition from which he rose, and nine-tenths of the present cultivated land still covered with broom, or the lodgement of the wild beasts of the field.

If they mean by their assertion that they are the chief support of the State, that the country has been under an agricultural administration for more than a hundred years back, I grant that they are right. But what support,—the amount of the national debt will tell us, in pretty plain terms, what it has been, and what is to be expected from the same people when in power. That the landed interest should bear sway in a nation purely agricultural may be just; but that they should do so in Great Britain, whose merchants are princes, and traffickers the honourable men of the earth, seems to savour of folly; to employ no harsher terms, I grant that they are worthy, by their profession, of a high station in society, but they have assumed to themselves a consequence which they do not possess, never did possess, and never will, in a mercantile country. That Britain is a commercial nation, no agriculturist, I presume, will dare to deny; neither will they assert that the enterprise of the merchant, or the ingenuity of the artificer, is of no benefit to themselves. Yet, strange as it may appear, the agriculturists in general suppose themselves superior to the rest of mankind; hence a wall of partition has been erected betwixt them (I mean betwixt the landed and mercantile interest) that will, if not thrown down, in a short period prove the ruin of the country.

It requires no prophetic talent to foresee the result arising from such an unnatural combination of one class against another, and it is to be hoped that more liberal principles will soon become the order of the day. A little reflection on either side, with the dismissal of a great deal of unnecessary pride from the agriculturists, will soon convince every one, that so far from their interests being divided, they are inseparably united.

CHAPTER II.

The value of Agriculture—Progressive Improvement, the cause of it stated—Learned Works not always a correct standard.

Taking a view of the husbandman at his labour, the various operations that he goes through is apparently so simple, that we are apt to conclude that all is easily performed, and that his work is of little consequence. Indeed some may think him a fool on observing him throwing his grain away, not considering that if this is not done there can be no harvest. But when we are assured that his labours, insignificant as they are, tend not only to the comfort of the human race, but even to the preservation of life itself, we must be forced to reverse our conclusion, and acknowledge that the simplest operation of the agriculturist is of the utmost importance.

As said before, the agriculturists of former years were in a state of bondage, and it was a natural consequence therefore, that an imperfect system of agriculture should be followed. In fact, it was so; those whose duty it was to cultivate the soil, having no encouragement given them, performed their daily labour as a task in which they had no interest, but merely to get it performed, no matter whether it was well or ill done. Such being the case, no improvement could be expected from this class of men, and none of any consequence took place. King John signed Magna Charta, this secured freedom to those who already possessed it—the nobles of the land. Henry VII. by the encouragement that he gave to commerce, taught the Commons how to emancipate themselves from bondage, and the Reformation following, relieved the nation from spiritual thraldom.

This may be called a new era in the history of England, the bond of vassalage was broken, the people perceived their own importance, and the charm that bound them in the fetters of the Church was also burst asunder, and all began to judge for themselves. The time had now passed away when creeds, either political or divine, was subscribed to, merely from the mandate of a superior, the vail of ignorance having been removed, and the disgraceful distinction of freeman and villain being abolished, the sun of knowledge arose upon the land, its beams gradually expanding with the rising day, until it shone forth in meridian splendour.

Formerly,—yes, it was the age of darkness and of ignorance—glory alone was sought from the battle field, or in the performance of unmeaning religious observances, that had for their object the destruction of the human race, or the gratification of Pontifical pride. A man became great as he learned the arts of destruction, and holy as he acquired a sufficiency of hypocritical zeal, to lead his fellow-men into the ways of error, and farther from their God. Those arts, the cultivation of which is a blessing to the world, was in a manner neglected, or only so far encouraged as suited the conveniency of the great men of the world, or flattered their unworthy ambition. But at last this state of things passed away, knowledge was sought after, and it was discovered that all and every one of the human race was descended from one common Father, and wondered how the contrary idea had ever entered into the head of the chief rulers of the earth. Now it was that men began to act for themselves; what they did was for their own advantage, for their own fame, and they bestirred themselves accordingly to acquire that honourable distinction which was to be their own.

In the march of knowledge, arts that had been long forgotten was redescovered, new inventions were brought forth, and agriculture also came in for its share of improvement. The swampy morass was drained, and transformed into arable ground; the river was confined in its course, and even the billows of the sea arrested, and dominions taken from the deep: from the valley, the bramble was rooted out; the hill was robbed of its broom; and the useful bread-corn waved its luxuriant head where the nettle had vegitated from time immemorial.

To what do we ascribe such a change,—to the first dawning of freedom upon the land,—to the enterprising spirit of the British merchant, it is freedom and commerce that makes the agriculturist a man of wealth and of importance in the state, commerce is the mother of freedom, there is no instance of a nation submitting unto slavery for any length of time after commerce began to flourish in it; and as few instances can be adduced of a nation purely agricultural ever being free.

But enough of this at the present time; we observe, that, since the first dawning of freedom in the isle, the agriculturist and our agriculture has progressively improved, but not in a proportional ratio. The farmers' condition has been within these fifty years remarkably improved, and it must be confessed by themselves, that ever since the days of Cain (the first farmer on record), they never held such a rank in society. This naturally leads us to ask a simple question, Is the soil improved according to the expectation held out to us by the present appearance of the farming *gentlemen?* I answer, No; it is not. I grant that it is greatly improved, and gives a greater produce now than it did in former years, but it has not yet been brought to the height of perfection.

We say that nature has been kind to Britain in many respects; it is true, that the climate is a variable one, even to a proverb; but it is also a genial climate, and the breadth of good soil very extensive. The productions of the soil is great and various, and with proper management the increase thereof might be doubled; but is such a matter wished for? I have heard it asserted that an abundant crop was a curse to the country. Whether this was spoken in sincerity, or merely in derision of that grumbling spirit that has possessed John Bull and his friends for these some years back, I cannot tell; however, I am sure, that a more impious expression never was spoken by man.

Our agriculturists say that they do all that they can; we have only to look about us, however, to perceive that this assertion is not correct; and I affirm, that with proper management, the present breadth of cultivated land would on an average, produce one-third more than what it does.

I own that much depends upon the climate, but a great deal depends likewise upon the farmer's knowledge in his profession, and the application of that knowledge to proper ends. Many of them consider that they have done enough if they plough their land, give it plenty of dung, and deposit a sufficient quantity of seed; but the practical farmer knows well, that much more than this is required of him. To plough, to plant, to sow—these are necessary operations, but operations that a fool may perform; a fool can also let his land lie idle, which many of our wise men do, but do these simple operations constitute a farmer? No; they do not. Is it not woefully evident, that many of our agriculturists are very ignorant of their own profession, and they little consider that nature often requires the assistance of her hand-maid, art, to bring her works to a conclusion; but instead of assisting nature, and following where she directs, a system of manual operation has been resorted to, and implicit confidence put in these, exclusive of every other consideration. Doing this, the farmer may blunder on success, the result of his systematic manner of working may be favourable, while the season remains unchanged, but no sooner does that take place, than he finds, by dear bought experience, that his manual operations is not the only thing that he should have learned.

As agriculture has now become an honourable profession, and if we are to judge by outward appearances for some years past, apparently a very lucrative one, it cannot be reckoned as a wonder, that many a one is to be found in that line of life who has no natural ability for it. Where profit and honour is united in one profession, as is in the case of a farmer, there will of course be many candidates for the situation; and here, as it often happens in other matters, the situation is obtained before the man begins to think of qualifying himself for it. The consequence of this must be obvious to every thinking person; success may follow, but it must be at the expence of both time and money that might have been spared; ignorance may be the mother of devotion, but it cannot be called the mother of invention, or the friend of industry.

Properly speaking, agriculture is a very complicated art in Britain, requiring the assistance of science in a greater degree than many farmers are aware of, or the greater part of them are willing to acknowledge. But at the same time, it will be found that (in agricultural matters) more mistakes happen by a perverse adherence to a particular system, or preconceived opinion, than from ignorance. I acknowledge that the wisdom of our forefathers was great, and has now become proverbial. It were well, indeed, if we imitated them in many points of morality, but I apprehend that it would not be improper to add the wisdom of the present age to those that are gone by in other matters. It is within my own recollection when many of our farmers thought it a profitable speculation to allow a quantity of weeds (chiefly thistles) to grow up among their standing corn, as summer food for their cattle; this no doubt was reckoned economy by our farmers of former times, although our modern ones seem to have discovered that it is not so, by laying aside the practice in a great degree. Why have they done so? Probably because experience told them that corn is of more value than thistles, and that besides impoverishing the ground, one thistle took up as much space as was sufficient for the vegetation of two dozen stalks of wheat. It is very likely that the first person who had the hardihood to pick out the useless weeds from amongst his corn was branded as a fool by his neighbours around, and probably his ruin predicted, from the adoption of a beneficial measure. Perhaps the man was a fool, be it so, his conduct has been partly imitated by not a few, but not to the extent that it should be; true enough, the fields now present a more respectable appearance than what they did formerly, but still there are too many weeds allowed to decorate the fields—many of our agriculturists have yet to learn that the soil of Britain will not support two crops at one time.

That there is a deal of prejudice amongst our agriculturists, every one must allow, and it is also evident that they are in possession of a due proportion of ignorance, which they would do well to dispose of in wholesale quantities, if they can find fools enough to become purchasers. This is a sweeping accusation, but seriously, it must be allowed that there are many real farmers in the country, but these are a small number in comparison of the whole, who, in general, are men that know little about agricultural affairs, or what amounts to the same thing, give themselves little concern about the operations in the field, deeming it sufficient employment for *gentlemen* to attend the market in a dashing style, to take the money for what grain has been sold. This certainly is one part of the farmer's work, but will any person say that this is all that he should be learned in? I think not; something else is surely required, and that is a knowledge of the soil that he cultivates, and the effect that the atmosphere has upon it.

The farmer must be a learned man. I do not mean that he should have education to qualify him for being Prime Minister of Great Britain, or Archbishop of Canterbury; but this I would advise him to study, namely, the science of chemistry, so far as it treats of the nature of soils, and other matters connected with his own occupation. The farmer must be a chemist to succeed in his business, that science will teach him what is the proper qualities of different soils, their capability to receive the different kinds of seeds, to nourish them, and to bring them to perfection. It is nothing to say, that every soil, even the worst, is possessed of vegetable life; that something or other will grow upon it: the inquiry is, whether a particular spot of ground is calculated for the kind of grain intended for it; and if not, how it may be rendered fit for the purpose, that the produce may have a probability of repaying the cost of production. Assuming it for granted, that the season is an ordinary one; the man of science will soon discover the properties of his soil,—experience indeed will learn the other, if he is not a blockhead; but before that experience is acquired, a nineteen years lease is expired, and the poor man's purse is drained to the bottom.

There has been many a learned work sent forth to the world treating of agricultural affairs; but I question much, if these works are not calculated to do as much harm as good. There is no doubt but that the observations made therein is the result of experimental knowledge, so far this is well; but herein lies an error little attended to, namely, making these observations applicable to a general purpose. Experience, of course, is an excellent teacher, but the observations made, and the practical knowledge acquired by the learned man in one county, cannot be an unerring guide for the unlearned man in another. The example may be followed, but the presumption is, that a failure is the consequence, which, if not laid to the learned man's account, will always be ascribed to an unfavourable season.

Without question, trials must be made, or then there can be no improvement; but in such a variable climate, with such a diversity of soil as what is to be found in Great Britain, it is certainly folly in the extreme, to make local improvements subservient to a general purpose. How can general rules be applicable in Great Britain? where will we find, I do not say two counties, but two farmers' grounds alike? The chemical properties of two contiguous farms may indeed be nearly alike; but their situation must, and will be different, besides the fields are otherwise arranged, and they are differently exposed or sheltered from the different winds, and to the action of the sun. These may seem small matters, but trifling as they are, they are matters that have a great effect upon vegetation.

These observations of mine may give offence to many of our agriculturists, and some would be apt to say, that I am giving instructions on a matter that I know nothing about. It is true that I am not an agriculturist by profession, but I have learned enough of it to perceive that many, very many, are either more ignorant than I am, or then they make a very bad use of the knowledge they possess. Bare fields, half crops, fallow-ground, with an excellent crop of useless weeds, does not bespeak the soil to be in possession of a man having the least pretensions to knowledge or industry. But whatever may be the construction put upon what I say,—my motive is a good one. I wish to see the farmer, what he seems to be, an agriculturist in reality, and not a rural *macaroni*, whose only ambition is to cut a dash in the market, or take the lead in a county ball.

CHAPTER III.

Ignorance the cause of mischief—the Farm takes too much work, and gives too little employment; the evils of this, Emigration,—not a cure for the present distress—A remedy proposed.

I am not going to give an account of the different kinds of soil, as I am not learned enough for the purpose, and even if I were so, I would deem it a piece of superfluity. Every man, before he takes a farm, should be so far learned himself, as to be able to decide, with a little inspection, the probable expense of tillage, and what return may be expected from every soil. A farmer should be one from his infancy,—one from choice, it is only such a one that will do good to himself and his country; he that jumps into the situation, because he cannot succeed in any other profession, cannot hope for success in this one either; yet many such are farmers now a-days, and is it any wonder, that after they have ruined themselves, by engaging in a profession they knew nothing of, that they should join the precious pack who are everlastingly yelping—agricultural distress. This has now become a fashionable word with many of our friends: but were the matter properly canvassed, it is very likely that we should find this distress in a great degree owing to themselves. May I be allowed to take notice of a few errors connected with agricultural affairs; errors, glaring ones too, but I confess, far from being acknowledged as such by our gentlemen farmers.

The greatest error of all is, in the farmer taking too much work in hand, and many farms are by far too extensive to be beneficial to the farmer, or good to the country at large. I may be laughed at for my opinion; but I maintain that 200 acres are as much as any man can properly manage; if he has the length of 300, he may do; but exceeding that, he must neglect either his own interest or the proprietor's. Two hundred acres is but a small farm now a-days, but it is quite sufficient for one man, and if the farmer has any skill at all, the rent must be remarkably high, and the season a very unfavourable one, if he does not make a genteel living out of it, and save money too. Of this I am certain, that when a farm runs from 1000 to 3000 acres, one half of it will remain unproductive; the tenant indeed may pass for a great man amongst his comrades, and he may even have the precedency of better men; but his country, instead of gaining by the extensive breadth of land that he holds, is actually a loser.

It is contended indeed by the advocates of large farms, that no man would ever make improvements upon such a small breadth of soil as 200 or 300 acres. I believe this assertion to be groundless, and the reverse of it to be true. I grant indeed, that agriculture (in Scotland at least,) never reached to any height until the introduction of large farms; but this is no proof, that large farms is the cause of all the improvements that has taken place, I rather deny the inference. Why is Flanders in such a high state of cultivation, where the greatest farm does not exceed 150 acres? And why is the great farms in Britain in such a backward condition? The question probably will be answered by an assertion, that the two countries are different—this is partly true; but the difference of climate is not the principal cause of such a difference in the produce of the soil, whatever our wise men may think of the matter, else many parts of the world that is now in a manner barren, would be like a watered garden. People talk of the good that large farms has done to Britain,—the good that they have done remains yet to be discovered, and I am amongst others firmly persuaded, that if such farms had never been parcelled out in Great Britain, agriculture would at the present moment have been better understood. Agricultural distress would never have been heard of, and that dead weight upon the prosperity of the country (the Corn Bill,) consigned to the tomb of all the caupulats.

What if we should say, that large farms, instead of being a good, have been a positive evil to the country; the assertion I am afraid will be too easily proved, without consulting the wisdom of ancient times.

Let us inquire what benefit the landed proprietor gains from letting out his estate to one or two individuals,—does he get a higher rent? By no means; the greater the quantity of ground let out in general, the less is given for it per acre; besides the landlord runs the greater risk from the probable failure of his great tenant, if such things should happen, which is not unfrequently the case. The man who possesses but a few acres, knowing he has nothing but the labour of his own hands to support him, is compelled to become industrious, especially as it seldom happens that he has any credit with the laird. It is true, that misfortunes will attend the most industrious, and even the best of men; but, in all human probability, it is more likely that the great man fails before the small one; then where is the landed proprietor? If his estate is let out in small farms, the failure of one man will do him little injury; but if otherwise, it is let out into large farms, the failure of one may be his ruin.

Let us next inquire what benefit the farmer himself reaps from taking so much work in hand,—do they make a fortune by it? Some may do so; but it is what is termed *chance hazard* at the best of it. It is granted that a large farm gives into the farmer's hands a large sum of money every season, which enables him to cut a figure amongst his fellows,—this very command of money may happen to be his ruin. Perhaps he imagines, as many wise men do, that every pound in his pocket is his own, and that he can do with it what he pleases; hence he gets into an extravagant manner of living, and carries it on with a high hand, never reflecting on the consequences, until two or three years of rent stares him in the face, and he has not wherewithal to pay; but perhaps his implements of husbandry, and the remains of an extensive stock of wine. Is this a matter of supposition? It may be deemed so, but let our agriculturists say, if they can, *that such things has not been.* Of what purpose is it that a man is prosperous in his younger days, that he has all that he can desire at his command, while this very circumstance leads him through the gates of extravagance to a premature grave, or to taste the bitterness of despised poverty in his old age. Is this a condition to be envied? It cannot be, yet it is a condition to which many a one is reduced, and reduced to it by their own foolish ambition; many indeed, who, in all likelihood would have lived respected, and been an honour to their country, had they not grasped at more than their means were able to accomplish.

But take the matter in a national point of view. Of what advantage is the large farms to the country? Many say that they have been of great service, and that the advantages resulting from them is not to be reckoned up. Indeed! Why, methinks that such an expression should have come well from the lips of an American, for who was it that composed the American army, when the richest jewel that ever adorned the crown of Britain was snatched away? These very men who were banished from their native soil of Britain, by the introduction of large farms into the country. These very men, or their children, who drew their first breath in Britain, and whose greatest wish was, that after years of toil, years spent in the service of their country and their fellow-men,—their bones should be laid in the same spot where their forefathers had mouldered before. The land of our nativity is dear to every human breast, to a Briton, to a Scotsman it is particularly so, wherever he may wander! Whatever spot of earth he may visit! Whatever dangers he may encounter on his peregrinations through the world, whether in poverty or in wealth, one hope still animates his breast,—that hope is, that he at last shall revisit his native land,—that he again shall behold the scenes of his childish amusements, and behold in the children of his once sea-severed friends, a new, and a sprightly race arising to become the pride, the support of his native isle, when he and his fathers are mouldering in the grave.

Such are the hopes that cheer the wanderer, as with wearied steps he traces the distant landscape, but from this hope did our boasted improvement cut off the most efficient of our population,—the most hardy of Caledonia's sons, and sent them as wanderers through the world,—never, never more to return. They went, not for a season, to visit the distant places of the earth, but to seek that employment, and that protection that was denied them in their native land,—that protection and that employment at last they found. America adopted them as her children, and how well they proved themselves worthy of such a favour, the records of Great Britain can tell.

We say in general that when a manufacturer enlarges his establishment, he also increases the number of employed; but the reverse of this takes place when the farmer increases the number of his acres, on the supposition, that there are three farms, each of 200 acres lying together, and that there is a tenant on every one, of course there are three establishments. But let us suppose again (which is not improbable,) that on the expiry of the lease, one farmer takes the whole into his possession, and he will manage to labour it with two-thirds of the people, or, in other words, two farmers with their families, and at the least the inhabitants of one farm is turned off upon the world, perhaps to subsist upon parish charity. I ask, then, how is the country benefited by such a measure? There is perhaps a chance that the individual in question may make a fortune, as it is called; but how a nation can be enriched by reducing two-thirds of the population to beggary, is more than I can make out.

Farther, does not the introduction of these large farms, not only reduce the agricultural population, but throw them upon the mechanical classes? What then must be the consequence of this? Does it not reduce the wages of the regular tradesmen, or throw them out of employment altogether; then how is the unemployed operative to subsist? Hunger is ill to bear, and a starving family is not the most comfortable sight in the world,—the man may put forth his hand and steal, then the gallows is sure to be his reward; he may go a begging, and he is branded with the name of an idle vagabond, and even perhaps sent to the house of correction. But these resources may not answer, and the parish is applied to for support; but what support will he get from thence? We know by experience, that if he is in actual want, he will barely get a sufficiency to keep body and soul together; and at the best, that charity which the parish bestows, is cold indeed. The law, however, will support him in demanding assistance from this quarter, and a question arises here, from whence is the funds drawn that supply the demands made upon the parish? I believe every farmer and landed proprietor can answer the question when he inspects his lightened pockets.

But perhaps the suffering artisan does not apply for parish support, which is given, I had almost said with a daily curse, but transports himself to another country. I would ask wherein is the nation benefited by this? It is true that one claimant for support is out of the way; but did it never enter into the heads of our wise men of Gotham, that when a man leaves his country, he always takes his talents with him? But granting that this is not the case, wherein is our agriculturists benefited by the voluntary banishment of one-third of the population; has he yet to learn that the fewer the people, the less chance there is for his disposing of his grain to advantage?

When the population is thinned, or if it is more satisfactory to certain people, when the country is purged of useless hands, what must be the effect, stating the question politically? Those conversant with history will easily answer this question, when they reflect upon the condition of France upon the revocation of the edict of Nantz. I do not speak alone of the banishment of talent from the land, which is in itself a serious evil, (in as much as it gives to rival nations that ingenuity and industry that should have been the glory and support of our own nation,) but I speak also of the want of that population, which alone constitutes the support of the state. Villages are the nurseries of warriors, (I deprecate the art,) but when a nation is surrounded by neighbours, perhaps not altogether friendly, it is certainly the interest of that nation to keep within her own bosom the sinews of war. I do not say that such is the case with Great Britain in the present day. Foreign powers are friendly, but how long they may continue so is another question; at all events, whatever may happen, this will certainly be granted me, that the defence of a nation should always be intrusted to her own children. Where, then, is the wisdom of transporting the most efficient of our population to other countries? Is that man a friend *to his country* who does so, as far as it is in his power? I answer No; he cannot be such. He may pretend to have the good of his country at heart,—he may put down his name for a weighty sum in some charitable list,—he may enrol himself as a member of some yeomanry corps or another, and pass off a patriotic toast at a public dinner; but, in spite of all, this man, whoever he may be, so far from being a benefit to his country, is a curse and a shame to the human race.

Emigration, as a means of relief, to say the best of it, is certainly one of the most foolish things that ever entered into the head of man. Let the individual do what he will, he is free—he is a free agent, and as long as he does no direct injury to his neighbour, we in a manner have nothing to do with him; but, for a Government to advance money for the purpose of transporting the most efficient members of the community to another country, cannot be called wisdom, so long as there is waste ground at home to be cultivated. I grant indeed that many of the inhabitants of Britain are at present labouring under severe distress, but I humbly conceive that neither the adoption of Mr Malthus's opinion, nor the proposed measure of transportation, is calculated to mend the matter. That there is distress, no man in his senses can deny; but I affirm that that distress is purely artificial, and does not arise from a superabundant population, or from a scarcity of provisions, as has been asserted by many, but from the unnatural position in which the country has been placed from different circumstances. When provisions get scarce they also get dear; this is granted, and that this increased value presses with double force upon the lower orders of society, is also granted; but how shall we apply this observation to the people of Ireland, whose distress arises, it is said, from the *cheapness of provisions.* There is something contradictory in the two statements. Britain is in distress, because the provisions there are too dear; Ireland is in distress because they are too cheap; truly one would imagine that the two countries being so closely connected, their reciprocal trade would equalize each other; but such is not the case, and the distress must arise from other causes than an overcrowded population, or the alternative of cheap and dear provisions. The fact of the matter is, *the trade of the country has run so long in a wrong channel, confined by absurd and restrictive laws, that in returning to its ancient course it has burst the barriers with which policy had endeavoured to curb it, and overwhelmed the fool-hardy speculator in ruin.*

But should the idea advanced above not be in accordance with the preconceived opinion of others, we will grant, for argument's sake, that the population of the country is too great, but will this justify our rulers to send people away at a vast expense to cultivate the waste land of Canada, or to found new cities in New South Wales? If the country is poor, why send the money out of it? If the working population is great, and in want of employment, why not take this same money and employ our present idlers to improve the waste land at home?

Of Ireland, personally, I know nothing, and from my own knowledge can say little; but if we are to take the sample for the stock, there certainly must be some truth in these reports that are daily reaching us from that country. To what cause do we ascribe their distress; the population is great, their favourite food is cheap; are these the two causes of distress? I rather dispute the question. Why is there so much mischief done in that ill-fated country? Is the people naturally cruel? No, they are not, but the majority of them are in ignorance, the consequence of ignorance is surely known. But Irishmen,—amidst the brutality of conduct which I have witnessed in many of them, I have observed a romantic generosity of disposition, which plainly showed that it only remained to direct their energies to a proper end, to make them the most peaceable people on the face of the earth:—

Hibernia's sons are men, and only men,
But,—use them kindly, they are your's for ever.

This may be deemed a satire upon the government of the country. I mean no such thing. However, if there has not been some misrule somewhere in that country, a man of ordinary abilities like myself is apt to imagine that it is very like it. I have a notion, and I do not know what has put it into my head, that if any man of common sense and common honesty were entrusted with half the money that is proposed to be advanced for the purpose of emigration, he would in the course of a few years make Ireland the garden of Europe, the people contented without Catholic emancipation, and happy and wealthy, without transporting them to our settlements abroad.

But this transportation, the word is such a disgraceful one that I cannot bear it, and yet it is always thrusting itself in the way in some shape or another. Let me ask one question more—did it ever enter into the heads of our wise men who are friendly to emigration, that such a measure is the ready way to procure us enemies? America is an example of this, and perhaps at no distant period, Canada will follow her example, and declare herself independent of the mother country. The attachment of colonies to the parent power is like that of children to a step-mother—there is no real affection between them, and the first gust of passion separates them for ever, and from being apparently friends, they become in a manner almost irreconcileable enemies. Let it not be supposed that gratitude will keep a people to their duty in a foreign land, true to the nation that has sent them there; such a supposition is absurd, especially to our North American colonies, when it is considered that they border upon a republican government, whose ostensible principles it is to level all distinctions; and the history of former years has informed us, that levellers of all casts, either as individuals or in a collective capacity, are never content until they themselves gain the ascendancy. Canada may own subjection to the British crown as long as it is her interest to do so, that is, so long as the assistance of the mother country is required to support the expenses of Government, and people the waste land with her surplus population. They may even remain in subjection as long as America continues a friendly power; but no sooner does she cease to be the most favoured nation, and Canada feels herself able to cope with the parent power, than, I venture to predict, such things will be done in that quarter of the world as will turn the wisdom of the friends of emigration into folly.

I know that it has been said by many, that Great Britain cannot support its present population, and that its useless hands must be sent somewhere to procure employment and subsistence. This assertion I flatly deny; besides, emigration does not take away the useless hands, but the most efficient of our population. However, not taking into account those inexhaustible supplies that may be drawn from the sea, I aver that the soil of Great Britain, under a proper system of trade and agriculture, is capable of supporting ten times the number of its present inhabitants.

CHAPTER IV.

Waste Land—Fallow Ground—Leases—Rack-rent—Game—An Anecdote.

The assertion made in the last chapter may seem to be a bold one, and unsupported by any proof; however, if we look at the present state of agriculture, and the land that is cultivated, I hope it will be apparent to all, that what I have said is not merely the wild dream of a visionary theorist. Is all the ground cultivated that could with advantage be cultivated? I believe that none will be so foolish as to say this. What is the breadth of five millions of acres to the surface of Great Britain? It is nothing. Yet this is all the cultivated land that we possess. It is true, that there are millions of acres that cannot be brought into a proper state for the purpose of raising bread-corn, but there are also millions of acres lying waste, or in unprofitable pasturage, that is well adapted to the purpose, were as much attention paid to it, as there is to circumscribe the trade of the country by the enactment of corn bills.

Not only is there a deal of waste ground in the British Isles that might be profitably laboured, but at the same time, that which is cultivated does not give the returns that it would do, were it properly managed. In general, the arable ground in Great Britain *is not wrought*; many farmers, indeed, give plenty of manure, perhaps at times too much, but dunging land is not dressing it. I wonder none of our great farmers ever took knowledge of this, when they dismissed their work people. The very best of soils, in the most genial climate, requires labour to make it give a good return; and I would really wish to be informed how the farmers are to get a full crop from the soil, when not one of them keep above the third part of work people that they should do.

An economist is commended for his thrift, and it is proper that he should be so; but there is little economy in dismissing the labourers of a farm, when the farmer loses fifty per cent. upon the produce of the soil by such a measure. All is not saved money that is kept in the pocket, and there can be no return expected where there is nothing laid out, and as little can be expected where the labour is not properly timed to the expense. A man may lay out a moderate capital upon a farm, and his money be merely thrown away, for the want of a sufficient number of hands to follow up every operation requisite. The success of the agriculturist depends much upon circumstances, and the getting of a certain quantity of work done in a given time; that time is easily lost, but to recal it, is past the power of man.

In the ploughing of a field it is but seldom that much attention is paid to the nature of the soil. There is a piece of work to be done, and it must be done in a certain time. Many times have I looked at this operation, and seen three furrows taken where there should have been five; but the men employed were not equal to the labour imposed upon them, and of course the work was only half done. There is no doubt but that the *learned* farmer in this instance thought himself a gainer; when he got his land laboured with a few men, he little considered, that by the cheap system he had adopted, he was in fact a daily loser. The soil that I allude to was the best in East Lothian, which is as much as to say that there is not much of a better quality in Britain, yet this farm never produced a full crop of any thing but weeds; these, I confess, were in abundance. This is by no means a solitary instance. There are many of our Scottish farmers liable to the same censure; the work is to be done, but it must be done cheap. Stupid people! how can work be done if men are not employed to do it? The farmer alluded to above, had he kept other two men upon the farm, with the soil that he held, he would have paid these men, and put two hundred pounds more in his own pocket every year. But, in fact, our agriculturists have now got so much into a particular system, that the changes of weather is not calculated upon; it is taken for granted that every day shall be a day of labour; interruptions from the weather to the operations of the field is never dreamed of by our wise and thrifty men; but they make a calculation of what one man, with a pair of horses, is able to perform in a day, without any interruption; and on this principle employ two men instead of three, taking as the guidance of their conduct the idle prognostication of a three-penny Almanack.

To talk of a particular system of agriculture in Great Britain, is folly in the extreme; a variable climate will not admit of that system at all; it is the weather, as it comes upon him, combined with the nature and distinction of his soil, that must regulate the farmer's proceedings. But a system has been resorted to *in spite of wind or weather*, and where will we find it carried to greater excess than in seed time? I cannot for my part perceive the propriety of waiting until a certain day for the commencement of this operation (sowing) whatever may be the season. I grant, that in some seasons, a favourable moment is embraced, but it is fifty times for this once as often neglected, for no other reason than this simple one, that *the set time of the year has not come round.*

I take wheat, for example this; grain cannot be put too soon into the ground, but the farmer often errs in being too late. It is true, that autumn-sown wheat may sometimes get too rank in the braird, but this is a fault that can be easily rectified, as long as a farmer keeps sheep, a scythe, or a sickle, beside him. Wheat should always have a firm hold of the soil before the winter storms set in; in this case, it is a very bad season indeed that will do it any harm; on the other hand, late sown wheat, if not nipt by the first storm on some soils, is almost sure to be thrown out whenever a thaw takes place. But, supposing that this should not happen, the late sown crop is not to be depended upon, it may give a volume of straw, and even an average produce of grain, yet, in general, this grain will be of an inferior quality.

I am perfectly aware that I am stating here what will be contradicted by many of our agriculturists, but I speak in reference to my own profession; it must be recollected that the farmer's measure and the baker's sack are different things, and that an abundant produce of grain is no addition to the baker's profit. As this, however, may be a plea of little moment with the generality of farmers, it may be added that their own interest demands that their wheat-seed should be put early in. I know it will be said that the farmer cannot do every thing at once; this is true, and an argument in my favour, when I say, that he does not keep men enough. I believe the farmer has no occasion to be told that his seed-time is the principal part of the year with him, and that autumn is the most proper season for sowing wheat. Knowing this, he certainly must allow, that it would be more beneficial for himself, as well as for his country, to superintend this operation in the proper time, than to go a hare-hunting. There is no doubt but that the chace is a healthy, and, to some people, an amusing exercise; but amusement should only be resorted to after all necessary labour is finished. If this is attended to, I am well convinced, that if the farmer employ men enough, he will find time sufficient for every operation and recreation too, with pleasure and advantage to himself.

Amongst the implements of husbandry, the plough deservedly holds a prominent place. But might not the spade at times, and in some situations, be used to advantage? Where the soil is worn out or destroyed by improper treatment, trenching not only becomes beneficial, but highly necessary, and it cannot be said that the plough is the best instrument for the work. On some soils it may do, where the sub-soil is not of value sufficient to turn up; but where the sub-soil is good, the spade should always be employed. That this manner of trenching with the spade will be an expensive operation, I grant; but I apprehend that the gaining of a new soil would speak volumes in favour of it; the saving of manure alone would more than repay the expense incurred, independent of a good crop, and saving perhaps a year's fallow.

Fallow-ground is in fact a reproach to a farmer in almost any part of Britain. What would the agriculturists of China and other parts of the world say, were they told that the farmers of Britain had to give their ground a year's rest now and then? They would laugh at the very idea of it. It may be said by some of our farmers, what is this to the purpose, we are farmers in Britain, and not in China, where there is such a difference of climate; true, China is an extensive empire, and embraces a vast variety of soil and climate, but in many provinces where the climate approximates nearly to that of Britain, there is no such thing as fallow-ground to be seen. So far indeed are the Chinese from allowing their ground to lie idle one year out of every five or seven, that they, some how or other, manage to procure two full crops every season; whereas, our farmers seem to be quite satisfied with half-crops every year, and every fifth or seventh one, none at all. The ostensible purpose of allowing ground to lie in a fallow state, is to renew its chemical powers, or to extirpate weeds; but the farmer has himself to blame if any of these causes render it necessary to resort to fallowing. This, in most instances, is the result either of ignorance or avarice in the farmer,—ignorance of the nature of his soil, or from mere greed of the world, that will not allow him to give it proper manure or labour sufficient. In short, I never see a piece of fallow-ground (unless it arises from the season), but I always imagine that it is in possession of a man greedy of the world, ignorant of his profession, or that there is some absurd clause in the lease.

I say absurd clause, for many farmers are not to blame for having fallow-ground, being under an obligation by the tenor of their leases to leave so much ground idle every year. The restrictions as to rotation of crops may be necessary, but it is certainly ridiculous to bring a tenant under an obligation to have fallow-ground; is the proprietor afraid that his tenant shall get rich before him; or if not, for what purpose are such clauses inserted? The farmer must either be an experienced man, or he is not; if he is experienced, and is master of his own profession, he will, for his own sake, give a proper attention to the soil, and if he is not an experienced man, why let him have land to spoil, as a few shillings of additional rent will but ill compensate the proprietor if he get his ground thrown out of cultivation by an unskilful farmer. With proper labour, manure, and a due rotation of crops, arable ground will maintain its vegetative power for years, and when it does fail, trenching, and not fallowing, is the way to renew it. In my opinion, the landed proprietor would do well for himself were he to oblige his tenant to keep a sufficient number of men to labour his ground, and not bring him under any obligation to let that ground lie idle every now and then.

When upon the subject of leases, I cannot refrain from entering my protest against that system which has crept into the country, of the landed proprietor letting his ground at what is termed rack-rent; truly this is one way of encouraging an industrious tenant! The meaning of rack-rent is this; that when a lease is nearly run out, the proprietor, without asking the present tenant whether he is to stay or not, advertises his farm, and the highest bidder of course has the preference, no matter what he may be. I may be wrong; but I would look upon such conduct as an act of great injustice, both to the present tenant, and to the one that is to follow. After an industrious tenant has expended a moderate capital upon the improvement of a farm, how galling must it be to him to have his farm advertised to the highest bidder on the expiry of his lease, when he is willing to stay, and perhaps wishes to do so?

With such prospects before him, is it reasonable to think that the farmer is to keep his ground in a progressive state of improvement near to the end of his lease? The supposition is absurd, nay, the reverse of this will be the case; little will be done to the soil for the last two or three years, as the farmer is under a moral certainty that he is laying out his money not for himself, but for the benefit of others. Any person of observation may perceive, if he look about him, that land, where a lease is nearly run out, always gets into a worse condition every season, so that in the event of a new tenant taking possession, that new tenant will have two rents to pay instead of one for the first year. True, this operates in the same way if the old one remains, but not in the same degree, as he is acquainted with the nature of the soil, and having the advantage of knowing a year before-hand whether he is to stay or not, can the sooner bring the ground into a good state.

The payment of a certain sum of money gives to the payee a certain portion of land, which, to all intents and purposes, becomes his own, from which no person can dispossess him. This being the case, well may we ask, why does the payment of a lesser sum yearly not give to the tenant a permanent interest in that soil which he cultivates? Is he a less worthy member of the community, because he has the hard fortune perhaps of being a tenant. I am treading, however, upon delicate ground; circumstances may arise where it would be highly improper to give the tenant a permanent interest in the soil, but surely such arrangements could be entered into as might be conducive to the interest both of landlord and tenant, without resorting to that low and mean, I had almost said iniquitous, procedure, of letting the farms at rack-rent.

I make not the least doubt that there are bad tenants; but the presumption is, that there are bad landlords also. We will suppose that an industrious man takes a farm which the proprietor himself, with bad management, had destroyed; we will suppose again, that the tenant expended betwixt five and six thousand pounds towards the improvement of this waste land, and then imagine what the proprietor's conduct should be to such a tenant? A man of liberal principles will be at no loss to come to a conclusion; but should we add (in supposition only) that the proprietor, instead of waiting patiently until the farmer had got some return from the soil, that he seized the whole of the farmer's effects in the second year, and turned him almost pennyless upon the world, what could we say of such a man? Probably that he acted in strict accordance to the law: but can we add also that he observed the golden rule of doing to others what he would wish that others should doun to him? I have stated the matter merely as a supposed case; but would to heaven I could affirm that *such things had not been.* Let the landed proprietors of Great Britain put their hand upon their breast, and let each individual say, with a clear conscience if he can, *I am not guilty of such deeds.* But to particularize names is invidious. One thing is certain, that the landed proprietor would receive more honour from having a strong and healthy population upon his estate, than the preservation of hares, rabbits, and so forth. There may be a pleasure in preserving these animals to the ruin of the farmer's hopes, and there also may be a pleasure in coursing them through the standing corn; but there is certainly a greater pleasure in promoting the welfare and happiness of the human race, although it must be confessed that these animals termed game by our law-makers, are the only living creatures that receive much attention from most of our sporting gentry. I would say, let such people's attention be turned from hares to their fellow-men, and their pleasure, as well as their income, in a little while will be greatly increased.

It is not many years since a farmer invited his landlord to take dinner with him, and the invitation, out of courtesy, accepted; when the gentleman had seated himself at the table, and taken a view of the savoury viands before him, he could not help remarking to the farmer, that although he had every thing in season, he had certainly forgot the chief article,—that was bread. "O, not at all," replied the farmer, "the bread was not forgot, but I imagined that you never ate any, as you pay so little attention to my standing corn, racing through it each day with your dogs and horse." "I take the hint," said the gentleman, "as intended, and I am sorry that I ever should have done so; believe me, it never entered into my head that I was doing any thing amiss, but I now see the impropriety of my conduct, and promise you that I shall do so no more; moreover, you shall be indemnified for what damage I may have done."

This gentleman certainly acted in a proper manner, and to those who have been guilty of the same misdeeds I would say, imitate the latter part of his conduct. There are few of our sporting gentlemen, I believe, aware how easily grain is spoiled in a certain stage of its youth, viz. when it is in bloom. A person passing gently through a field of wheat will hardly fail to rub the bloom off, what then must a horse at full gallop do? The treading down the corn is nothing, it may rise again, but when the bloom is thrown off, the farmer may cut out the straw when he pleases, for assuredly he will have no grain.

CHAPTER V.

Seed-time—What weather may be expected—High Winds, their effects—At what time Wheat should be sown—How cut—Delving—Planting, which is the best method—Good and bad crops, which is most beneficial—A Patriot, what he is.

In a former Chapter, I have said that the farmer in general is too late of putting his seed into the ground, and that he is too much attached to a particular system; that is, a certain day must arrive before he begins the operation of sowing. The climate of Britain being extremely variable, such a practice cannot be recommended, and the experienced farmer will embrace a favourable season rather than wait for a certain day. There is no man can tell what the weather is to be, but with a little observation he may give a probable guess; he may be mistaken, but it is always best to err on the safe side. Taking Great Britain on the whole as an inclined plain, whose declination is from west to east, it may be expected that more rain will fall in the eastern than in the western parts of the island, and in fact daily observation proves this to be the case. The cause of this may be assigned to the prevalence of the high westerly winds, which bring along with them the heavy clouds raised in the Atlantic Ocean. These clouds, in their passage overland, being intercepted by various obstacles, such as woods, cities, high lands,—the waters are necessarily discharged before they reach the eastern extremity of the kingdom. From the prevalence of eastern winds, which blow sometimes for months together, it might be inferred that these winds would also bring rain with them, but this is not the case in general. Those clouds that are raised in the German Ocean, are, by the easterly winds, carried into the interior, and seldom fall upon the coast, but in the case of a storm. It is not an unfrequent circumstance for two or three slight showers to fall upon the coast, and yet at the same time the waters overflow their banks; this is owing to the eastern and western clouds meeting in jarring discord, near any attractive object in the interior, and falling down upon the high lands, form what is called speats in Scotland.

For the most part, the easterly winds that beat upon the sea-ward lands are dry and arid, and the effect of these winds are often severely felt. When they continue to blow for any length of time, they are extremely hurtful to vegetation, particularly to green crops, which are sure to suffer;—potatoes, turnips, &c. will, in the course of twenty-four hours, assume the appearance of being scorched with fire. It is true, that the western winds have sometimes the same effect, but not to the same degree, and the wind must blow very high for a considerable period, with a strong sun, to do any great mischief. When the leaves of potatoes, turnips, &c. are thus scorched with the high winds, they may recover with after genial weather, but it is very likely that the crop will be an insufficient one; the following mode of treatment, however, may be resorted to; the process is a tedious one, but I always found it effectual to the recovery of the plant: Take from every plant the leaves that are in the least damaged, and in a short time new ones will supply their places, more vigorous than the first; while otherwise, if the shrivelled leaves are allowed to remain, the plant, if it does not die, will always be kept in a weak condition, and the produce it gives will be small, and generally of a bad quality; this I know by experience to be the case.

The general character of the climate of Britain is, that it is a moist one; but it is of rare occurrence that the eastern parts of the island is visited with an excess of rain; it is rather otherwise, and the farmer has often to complain of drouth, at least in that part of the year wherein rain would be most acceptable. When an excess of rain falls, such a visitation must be submitted to; but I apprehend that when drouth takes place, the farmer has it in his power to lessen the evil greatly; why not resort to irrigation, where a burning sun and a dry atmosphere is destroying the tender herbage? This is an expensive and tedious process; true, it is so, but from whence is the soil of Upper Egypt supplied with moisture? Is it not by this means? And can it be said that the inhabitants of Britain are less able to perform this operation than the Egyptians? No, they are not; but there is the want of a willing mind. It may be asked, however, from whence is water to be procured, for the purpose of irrigation, when every stream is run dry? I answer, from the ground itself. Sunk wells, it must be acknowledged, have in some seasons also run dry, but this is accounted for by the circumstance of these wells not being deep enough, those that sunk them being contented with the first water that came, which being merely surface water, was sure to fail in a continued drouth. But some of these wells are as deep as they possibly can be made with safety; I grant that they are so, but affirm that there is no occasion to sink wells at all to procure a constant supply of water,—boring the ground is quite sufficient for the purpose.

Were this plan of boring the ground adopted, water in any quantity, and in any situation, might be produced, and that a never-failing supply. For this purpose, nothing more is necessary than to procure pipes of the dimensions required; and, as the soil is extracted by the borer putting in the pipes, always adding to the length of the pipe as the borer makes way for it, a few feet from the surface, water may be procured; but this is not the water required, and it may be necessary perhaps to go the depth of two or three hundred feet ere a living spring is come to; but no sooner is that obtained, than the water will of its own accord rush up to the surface of the earth, and often some feet above it.* Such an operation would be an expensive one in the first instance, but the constant supply of water which it would give, would more than compensate for the expense; and might not such a well, if they will bear the name, become an appendage to every farm? Were such means resorted to, to procure water for the supply of towns and cities where it has to be brought from a distance, many a pound might be saved. But perhaps the plan is too simple, and not expensive enough to be adopted, where great establishments are thought to be indicative of gentility!

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* At Richmond-hill the ground has been perforated 252 feet, from whence issues a stream of water yielding 13 gallons per minute, and rising upwards of 24 feet above the surface.

The term irrigation is applied to ground being laid under water for a time, but not in this sense do I wish to be understood, but simply to the sprinkling of plants with water when parched with drouth, as they frequently are. Those showers that are the gift of heaven are undoubtedly the best for fertilizing the soil, and adding vigour to vegetative life; but when these showers are withheld, when the meridian beams of the sun, like the flames of a furnace, are scorching the tender herb of the field, is it not proper to give, by artificial means, that moisture, without which the earth would become as a barren clod, inclosed with a casement of brass?

But if this plan is not to be adopted,—if the process is too tedious for our gentlemen farmers, or rejected by the pious, under the plea, perhaps, of its being an impious attempt to procure that blessing which the Almighty has denied,* let them, in the name of goodness, do that which is in their power easily to do, and which the most bigotted zealot accounts as lawful, that is, to put the seed into the ground in a proper time. But what is the proper time, it may be asked? This depends upon the nature of the soil, and the seed that is to be deposited. The most experienced cannot tell what is to be the state of the weather on the days that are to come; but the experience of former years has told us, that drouth is rather to be expected than rain; this points out the propriety of committing those seeds to the earth early, that require moisture for germinating properly; such as wheat, oats, and barley. The pulse grains, such as peas and beans, with all their varieties, must be later. Wheat, without exception, should be all sown through the course of the autumn; or, at the latest, in the beginning of the winter quarter: later than this, gives at best but a doubtful chance of a good crop. Barley and oats, though generally considered as late crops in many situations, might be sown with advantage at this period; but, as in the pulse grains, are easily destroyed in the seed-bed, and cannot stand the rigour of a northern winter; the spring quarter must be pretty far advanced before these grains are committed to the soil; in fact not before the heat of the atmosphere is above forty degrees. Every person knows that there is no vegetative power in the ground at a lesser heat.

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* When fanners were first introduced into this country, a certain religious sect refused to use them, because, as they alleged, it was an impious invention of the devil to imitate the breath of the Almighty; might not the watering of crops in the field come under the same malediction!

The next thing to be considered is the manner of depositing the seed; this is either by broad-cast, drilling, or planting. The broad-cast system is the oldest, and the sooner we get quit of such a practice the better; it is certainly, to say the most in its favour that can be said, a great waste of seed. But, independent of this waste, the one half that springs up never comes to perfection. Much of it is not covered at all, this the fowls eat up; another portion is only partially covered, which soon springs up, and as soon perishes for want of proper management; and that which is really covered, being placed in unequal depths in the soil, both springs up, grows, and ripens unequally.

The adoption of the drill system is certainly a great improvement in agricultural matters, and it seems something surprising that the drill is not in more general use. Perhaps the drill may expend as much seed as when it is sowen by broad-cast, but when the seed is laid in equal depths, it springs up, grows, and ripens equally; at the same time the ground can be cleaned while the crop is upon it, which is an advantage that cannot be obtained by the broad-cast system.

The third and last manner of depositing the seed, is by planting. This may be deemed a visionary scheme, and too expensive a manner of proceeding, as it would require additional labour. I think, however, that the saving of seed alone would nearly cover all additional expenses on the soil, especially where the farmer is in the neighbourhood of a large town, where the assistance of women and children might he obtained at a cheap rate. It is calculated that little more than half a bushel of wheat will plant an acre of ground; this certainly must be an object in some seasons when seed is dear. But granting that the expense of planting is double to that of broad-casting, the increase will also be double, keeping an ordinary season in view.

In former years, the average produce of an acre of ground was three quarters (wheat); it has now, by superior cultivation, advanced to four or five; but I have known, in some instances, sixteen quarters. The produce of an acre, however, is kept as much a secret as it is possible to do. The farmers' calculation is four or five quarters, when they cut it themselves; but if the grain is sold upon the field, it is a bare spot indeed that has not (in their opinion) seven quarters upon it. There are too different statements originating from one and the same cause, namely, self-interest; and, were we to take the medium number, it is probable that we would come to the truth.

Six quarters (I speak of wheat only) is certainly a good return, and will pay even at the present prices; but this is not all that the soil in an ordinary season, with good management, can produce. Sixteen quarters has been taken from land in East Lothian, and why may not other lands equally good produce the same. It is confessed that every field is not capable of such production, but I hesitate not to assert, that there are millions of acres in Great Britain of as good quality as that from which the sixteen quarters were taken, and the same produce will be got, if the ground is kept in good heart, and people employed to labour it.

I do not say that planting the finer grains should be adopted in all cases, but I insist that the broad-cast system should be done away with altogether; one has but to look at a new cut field that has been sown broad-cast to perceive that one half at least of the ground is lost. With the drill, the liability of waste ground is not so great, and yet I believe that planting is the superior mode, both for saving the seed, giving a greater produce, and employing a number of idle people. But the great farms stand as an insurmountable bar against the measure, and perhaps the argument of the plan being a universal good, may be one of the greatest obstacles towards the adoption of it. In fact, our farmers are too fond of giving little employment—to command the greatest return, from the least probable expense, being their chief maxim; the maxim is a good one, but like other good matters, this maxim may be abused, and it certainly is so, when the farmer, to save a trifling sum, dismisses his work people, and thereby lets his ground lie idle, or only receives from it half a crop.

The agriculturists of Britain make a boast of their patriotic spirit, and, for any thing that I know, they may really believe themselves in possession of such a spirit, but I would ask where is their wisdom? With me, I must confess, profession is deemed as nothing, whatever the motive may be; I can only judge of men by their actions, and it remains to be proved whether or not the conduct of our agriculturists have been such as to procure respect from the good, and permanent prosperity to themselves. It may be a proof of patriotism, and of wisdom too, to join some yeomanry company or other; but, can it be reckoned on their part a proof of wisdom, to throw an idle population on the country? Or can they by this conduct be deemed the friends of morality, or the support of a fatherly government? It cannot be; but they may assert, that they give employment when they can do it; this, however, is not the case. I have said before, and I repeat the assertion, that not one of our British farmers employ the third part of work people they should, nor the sixth part of what they might do, with advantage to themselves as well as to the country. Giving the soil labour sufficient, will increase the produce of it; but, independent of this consideration, employment will be given to those who are at present begging their bread through the country, or subsisting on parish charity. Now, although a man may obtain an honourable name, by supporting others in idleness, I cannot conceive how such a one can be called the friend of morality,—there are few virtues nourished in a life of idleness, it is rather the parent of mischief, and I am persuaded that this is the principal cause of so many *worthies* gracing the gallows with their latter end. I do not say that the agriculturists are principally to blame for the immorality of the country; but at the same time I affirm, that it is in their power to remove it in a great degree, were they possessed of the tenth part of that generosity of disposition which they boast so much of. Let them give additional employment to those whom they must support, whether they employ them or not. It cannot be said that this is taking money out of their pockets, it is rather, in my opinion, increasing their income ten per cent. There are many, indeed, who have not the wisdom to perceive that one shilling given, in the name of charity, to those who are able and willing to work, is equivalent to the giving a premium towards the increase of idleness and of vice; and how this can be called the work of a patriot, or beneficial to the prosperity of the nation, I own that I cannot discover. Our agriculturists perhaps imagine, that in putting down their name to a charitable list, they do well; but would they not do better were the money here subscribed for, taken to give employment to those who are to be their recipients of their bounty; forty shillings given in a charitable bequest, would nearly trench and plant an acre of ground,—the produce would be double, perhaps triple, of the ordinary average, and the money so given would have double value in the eyes of those that received it.

But softly, perhaps I am reasoning all this time upon false premises,—are we yet assured that a good return from the soil is beneficial to the farmer? Their friends have told us repeatedly, that a superabundant crop is a curse to the country, consequently it must be a curse to them also, if they are to be considered as members of the State. However, forgive me this, if the doctrine is true; for I have all along been recommending a course of labour that has for its object the increase of the curse. I thank you, ye *new friends* to the human race, for that information, whereby I am taught how much I was in error, when I imagined that prosperity was a blessing to a nation, and plenty, the cheering gift of heaven. But why? If plenty is a curse, if a superabundant crop is the ruin of the farmer, it follows of course that the reverse of this must be a blessing; but is such the case, or do we find it acknowledged by our agriculturists? Why then was there so much grumbling amongst them for the scanty harvest of 1826, when the farmers got their own prayers answered? In my opinion they ought to have been completely satisfied.

But seriously, the assertion that a superabundant crop is a curse to the country, is absurd, impious, and experimentally false; its absurdity, nay, the absolute cruelty of such an expression, may be perceived in the consequent distress attendant upon a famine, and its impiety may be inferred from the declaration made by Jehovah himself to his people of old, when famine was threatened for their transgressions, and a double increase upon their obedience. But the assertion is also experimentally false; the history of all nations, and of every age, declares it to be so. I grant, indeed, that in the beginning of the present century, the agriculturists were advanced by a famine to be nearly equal to the nobles of the land, but this arose from circumstances which have now passed away, and, for the sake of humanity, it is fondly hoped will never return.

Let the farmers themselves be judges in the matter. Is a good crop not beneficial to them, even on the supposition that the grain is sold for half-price? In which case, I would ask, does the farmer reap most profit, from getting three quarters from an acre of ground, and selling it at 120s. per quarter; or seven quarters, and selling this greater quantity at 60s. One thing I must allow, which is this, that the additional quantity of grain creates an additional quantity of labour, and this may bring the two sums to be nearly equal; but then there is another consideration, has the farmer never learned yet by experience, that when the price of grain is high, the price of other articles rise also, and that for every necessary of life which his farm does not produce, he pays a double price, as well as advanced wages which he must pay to the mechanic, whom he is obliged to employ.

In short, keeping the national benefit out of the question, it is the farmer's own interest to have a good crop; and I will add, although he may not think about the matter, that it is also his duty to cultivate the soil in a proper manner. Common sense will tell him, that that man cannot be an honest man who takes possession of a farm and lets it run to waste for the want of proper culture; perhaps he may not be sensible of his own loss by doing so, but the proprietors will soon discover it, when a succeeding tenant is rendered unable to pay his rent. But, more than this, he also owes it as a duty to the State to increase the produce of his soil,—and the interests of morality demands that he should give employment. I do not say, that to plant and to dig, should be adopted universally; but this I am certain of, that were the plan adopted, many a starving family would gain wherewithall to support themselves in honest independence,—poverty in a great degree would be banished from the land, and the profits of the farmer increased ten per cent.

Let our agriculturists consider, both proprietor and tenant, that, by their present system, they throw many people out of employment, and at the same time, circumscribe the means of supporting these people in idleness, which they are bound by law to do. There is another matter which I believe has been little thought of by our agriculturists in their rage for getting their work done by few people, I mean that those who are employed are overwrought, women especially. The sickly appearance of the mechanical classes in large and manufacturing towns, has been often remarked, and the cause as often assigned to their sedentary employments; much of this may be true, but not to the extent that is supposed. There is no doubt, but that every art practised has diseases peculiar to itself; but these can in a degree be counteracted by proper treatment and care. It is not true, however, that disease is more incidental to large towns than to small villages; but when a female, for instance, has been in the country for a few years, and gone through the regular routine of country labour, she is almost sure to suffer in the end; while the labour endures she may not feel it oppressive, at least a spirited girl will go through a great deal before she complains, but no sooner does such a one remove her residence to any town of note, and become the mother of a family, than she will feel the effects of oppressive work in her younger days. The natural consequence of this is, that she is either in one continued fit of sickness to the end of her existence, or becomes the mother of a sickly family, that perhaps drops prematurely into the grave, and the insalubrity of large towns is thus established. Do I advance a new opinion? Would that it were unsupported by facts; but let the registers of mortality be consulted, and it will be found, that more die of diseases caught by oppressive labour in their youth, than from sedentary employments alone. It is the cause of humanity that I plead for; there are many aware of the extent of that misery consequent upon youthful oppression in some parts of the country; and, I am persuaded, did our agriculturists perceive the tenth part of it, they would be as ready to lessen this oppression as they are to sign petitions for the abolition of negro slavery in our West Indian possessions.

CHAPTER VI.

After Crops—Fruit Trees—For what reason is every Farm not a Garden—Stable Water, its value to the Farmer—Why it is suffered to run waste, or lost—A word to the Highland Society of Scotland—Reflection.

I AM perfectly aware, that, from what I have said, I may be branded with the name of a visionary enthusiast, and perhaps reckoned as one of those who wish to turn the world upside down. Be it so, I certainly recommend innovation—I recommend the adoption of small farms; this may be termed a revolutionary idea—I recommend to the farmer to condescend to become a man; this may be termed foolishness—I recommend to his notice the propriety of employing more people; and this may be termed madness:—well, let it be so, to this I have not the least objection; but what opprobrious terms will be applied to what I have yet to say, I know not. However, I must now proceed, with the probable expectation of being thought a visitant from the moon, or some other distant orb, whose brain has been turned by the length of the journey!

I have stated in general that there is a great deal of land lying idle; I mean, that the farmer is contented with one crop where he might have two in a season, if he would only put forth a due exertion, and employ people enough; I allude to those stubble fields that are cleared early in the season, which might be ploughed and sown with some herbage or other of speedy growth, as winter food for cattle. There are few seasons indeed, but acres of land are cleared soon enough for raising an after crop of barley, buck-wheat, or rape-seed, and it certainly is a piece of bad management in the farmers to let slip such opportunities; and after that, make it their cry that both them and their cattle are starving.

Various plants are calculated for winter feeding, that is little attended to in this country; buck-wheat is extremely rapid in its growth, so is barley—not to give a seed as an after crop—but simply as herbage or green food for cattle in the latter end of the year. Turnips also might be sown with advantage upon new ploughed stubble, and although they may not have time and heat sufficient to run into root, yet they will give a good supply of green food. There are two other plants which I am surprised few or none of our farmers ever attempt to cultivate, that is, cabbage and Scottish kail-plants, which equally stand the rigour of the winter, and might be sowed to succeed the after crop of barley and buck-wheat. The virtues of cabbage as food for cattle is well known; yet, in my opinion, the Scottish kail is a superior article, at least more of it could be raised from the same extent of soil, as the plant rises upon a high stalk, and does not spread out to such a degree as the cabbage, and, comparatively, takes up less room. Another advantage attending the cultivation of this plant before the cabbage is, that from the height to which it grows, it is not so liable to be covered with snow, at a time when such food is particularly wanted. All these crops may be raised, and the ground cleared, time enough for the spring crops, on the fulfilling of two conditions; that is, the farmer must employ people enough for the double purpose of seed-time and harvest, at one and the same time, and keep his ground in good heart, by a sufficiency of manure and labour. There may be some exceptions, and the farmer may not always succeed, were he to try the experiment, in all cases. Interruptions will arise from the season at times, but he who sits down to calculate the probable failure of this or that operation, will neither sow nor reap. By many, the scheme may be reckoned a visionary one; but the thing has been done, and done in our own nation too, and what has been done by one may certainly be done by all. Will this be disputed? But there are other means of increasing the farmer's profits than by after crops, not of such consequence indeed, but as little helps; and even if it were only to the supporting of one family through the year, it is always some good done.

I have often, in my country walks, observed, in almost every farm, a deal of waste ground, reserved for no purpose whatever but the propagation of weeds, such as the banks of ditches, small streams, and along walks, where the plough cannot come. Now, could this waste ground, by the judicious farmer, not be converted to some useful purpose or another? It cannot, certainly, be deemed necessary to keep up a regular nursery of weeds, which this waste ground is in reality. It surely will not be said that these weeds are a beneficial crop. I know of no return that they give to the farmer, but merely the pleasure of admiring the rapidity of their growth, if such can be called a pleasure. But I would not lose an inch of ground for a much greater gratification, while crops are lost in this manner, either to the proprietor or the tenant, merely perhaps from carelessness, or the want of thought.

Every farm is, or at least should be, divided into fields of a proper size, and where the boundaries of the farm is exposed to the effect of a northerly or an easterly wind, stone walls (where stone can be procured) is the most eligible for the purpose. Alongst the foot of these walls there will always be a vacant space that the plough cannot touch; would it not be a source of profit to the farmer to have fruit-trees trained alongst these walls? They would not take an inch of additional ground from him, and they would certainly, with a little labour, give some return. The banks of ditches, small streams, and corners of fields, present situations well calculated for the raising of standard trees, and even espaliers might be trained up in many situations as screen fences to divide the fields.

Does the fellow intend to make us all gardeners, methinks I hear repeated by every farmer, in a voice of indignation, all their angry passions aroused at the supposed insult? And why not; let me tell you in the first place, that it is not the least degrading to your character to be ranked as gardeners; the art of the gardener is more ancient, and of course, according to their estimation, more honourable than your own. But passing this, as perhaps such motives of ambition are not strong enough to influence the conduct of gentlemen, we may ask why is every farm in the nation not a garden, and what prevents them from becoming so? Is the soil not calculated for this finer labour? Perhaps it is not; but what will proper management not accomplish? Let every farmer look at his *cotter's kail-yards;* why are they always in such a flourishing condition, when in nine cases out of ten they are the worst ground naturally in every farm? and why is every inch of ground that the farmer possesses not so well cultivated by the one half as these same *kail-yards.*

These are questions, however, in a manner useless; every fool can answer them, and tell, that if the farmers gave as much attention to his acres as the work-people do to their small spots, his ground would turn out as well as theirs. But then the farm-servants rear no fruit-trees; this is granted, and the reason why is obvious enough,—they have no space allowed them for the purpose. Their superiors however cannot put in this plea, they all have space enough, and more than enough, if they would but condescend to set themselves to the work. It may be asked, however, when all farmers have become gardeners, what is to be done with the fruit? as, in this case, the country will be filled of fruit. There is little danger of this for some years to come, and even on the supposition that every one reared it in abundance, and we did not import a single shilling's worth from our *friends* abroad, means could be devised for the disposal of it with advantage.

I will take the farmer on his own ground, and in his own way, in the matter; he may be offended, but that is nothing; he must allow that I am right for once, when I say, that he is remarkably fond of good living. This by no means is intended as an insult; I give them credit for it, and who are they that would not follow the example that have it in their power? I mean, however, to say, that their propensity to live well provides the way, whereby much of the fruit that every farmer could raise might be consumed, if a more profitable market could not be obtained.

Wine is a favourite drink with our agriculturists, and from our British fruits a wine could be made proportionably as good, though not so expensive, as that which we get from foreign nations; but sorrow be to him who is ashamed of the productions of his native soil, merely because they are cheap. Apples are, when taken, an excellent article of food, and with care, many of them can be preserved for this purpose through the greatest part of the year, and those that will not keep, may, at a little time and expense, be converted into cyder. In short, there is not one kind of fruit that can be raised in Great Britain, but what the farmer can turn to his own domestic comfort, and even from the wild and despised bramble-berry, a wine can be procured equal, if not superior to the finest port.

But perhaps another objection might be taken against the culture of fruit-trees on farm ground, from an idea, that these trees, standing in an exposed situation, might tempt the cupidity of some to trespass upon the grounds, destroying the fences and corn for the sake of the fruit. There is no doubt but that fruit is a tempting morsel to many, whom we should suppose endowed with a little honesty; and it is lamentable to hear of those depredations that are yearly committed for the sake of a few paltry apples. Yet I would not consider this as an objection of any weight; if the article became plentiful, they would then lose their value in the eyes of those who now make a practice and merit of stealing them. Besides, the same objection might be urged against the planting of beans, peas, and turnips, which are at present tempting objects to the greatest part of our youth, many of whom will run a deal of personal risks to obtain them.

The greatest objection, however, remains to be taken notice of, that is, the generality of leases are too short for the farmer to cultivate fruit-trees; they do not grow in a day, or a year either. There must be a prospect of advantage before men will act, and before this plan can be acted upon, a lease must be given for a period of time sufficiently long that some return may be expected. Perhaps it would tend much to the prosperity of the agriculturists and the country at large, were the landed gentlemen to begin the work themselves,—letting the fruit-trees as an appendage to the farms, for which an additional rent might be required. Many farms are indeed at present not calculated for this species of culture, the whole lying exposed to every wind that blows; but it is the interest, as well as the duty of every proprietor to have his ground properly divided and inclosed,—it is the first step towards improvement. The landed proprietor may not think it worth his while to intermeddle in the matter, and I am sure that the measure will never originate with our great farmers, but to those who rent perhaps a hundred acres of ground. The hints that I have given (foolish as they may appear,) may be of advantage.

As the farmer should leave no spot of ground uncultivated, so he also should take care that nothing may run to waste; and yet how inattentive are the generality of them in this respect? It is well known that manure is a very expensive article; yet, strange as it may appear, the greatest part of them throw the best of it away, that is, in allowing the water of his stable-yard and dung-hill to pass away from him altogether. He little knows the value of this water, or he would take greater care of, and collect every drop of it. Were I a farmer, it would be my care to do so, and I would consider it as the principal part of my manure. Had our farmers been the least conversant on chemistry, they would have known that this water, which they perhaps in ignorance allowed to run away, contains in fact the chief part of that nourishment which dung imparts to the soil.

Since the above was written, I have been informed that some farmers of late have turned their attention to this subject; but these are few indeed in comparison to those that never trouble their heads about the matter. It is to be hoped, however, that the time is not far distant when every farmer in Britain shall have learned the value of this article, and have proper receptacles in his premises for the collection of it. The mode of agricultural operations may, and will be different, in different counties; but this manure will be of vast utility in every place, as a top dressing. For this purpose, let the water be sprinkled upon the growing corn as the season will permit; but I would not advise it being put upon young grasses, or grass fields, where it is intended that cattle shall feed, for, chemically speaking, the base of this water is pure ammonia. By the by, this suggests another hint, which may be taken advantage of; should the farmer scruple to use this water as a manure, let him collect it in flat wooden vessels, and expose it to the heat of the sun, or boil it on a slow fire, and he will obtain a strong salt that would become a valuable article of commerce. But not only may the farmer do this, but every person that keeps any cattle at all, and by this means a great deal of money might be made, that is at present little thought of.

The contents of this book, that is now drawing to a close, may, or may not, become a point of controversy, and should it be so, it is not unlikely that the majority of the world will be against me. I have recommended schemes that may seem visionary, such as small farms, the culture of fruit-trees, and so on; I am firmly persuaded, however, that the prosperity of the country, as well as the farmers themselves, depend upon the adoption of this measure; but whether I can persuade others to be of the same opinion with myself, is another matter, and will not stop here to inquire about it,—perhaps I am singular in my opinion.

As all sudden transitions are hurtful, it would not be advisable to make a division of large farms all at once; the experiment might be tried, before adopting any determinate cause, either as regards one thing or another. Were my voice to be heard, I would recommend it to the Highland Society of Scotland to take the matter in hand; it is a subject worthy of their consideration, should they be disposed to it. Experimental farms, from fifty to three hundred acres ought to be laid out in different parts of the country, making choice of some situations in the Highlands, as well as in the Lowlands of Scotland, and committed to the charge of experienced men, both as farmers and gardeners. It would not, in my opinion, be expedient to place men in such a situation upon a fixed salary; in this case there would be no stimulus to industry; but were they placed in it in such a manner, as that they might call the produce their own, or, in other words, if the third part of the free proceeds was given as a remuneration, the happiest result from the experiment might be anticipated.

There might be experienced men, and also honest in principal, obtained for such situations,—men that would strain every nerve to prove themselves worthy of trust; but man is only man, and it is not to be expected that the choice is always to fall upon the best. For a place of trust, there are always candidates enough, and it as often happens, that he who has the least ability has the most interest to obtain such situations. It does not unfrequently happen, that a worthless fellow may obtain a good character on purpose that he may be got rid of in an honourable way; at all events, any concern under the management of a public company, is liable to great abuse from the absence of the principal manager, who perhaps may think it the chief part of his duty to save his yearly salary, and depute the other parts of the work to others. Such conduct may perhaps have no ill effect in the management of a Gas Light concern, for it is not unlikely that the greatest light is given out when the chief rulers are in darkness themselves; but in the management of agricultural matters, the work must not be left to a deputy, the principal must always be on the spot, and at the head of affairs himself, if it is wished that success should follow the endeavours made to procure it.

BOOK III.

CHAPTER I.

Introductory Sentence,—Culture of Wheat,—the Soil, Seed, Manure,—Crop,—Steeps,—Lime.

Had I been in possession of those high pressure brains, which many of our condemning gentry have been blessed with, perhaps the contents of the two preceding books might have been only the third part of what they are, and likely my agricultural friends would have been the better pleased had such been the case; however the thing is done, and as it is, it shall remain so,

> "For foes to censure,—kindly friends to praise."

If friends are to be found in modern days, I might here enter upon a long dissertation anent the self-assumed humility of authors, consequently drawing this inference from it, that they are the proudest set of mortals in existence, excepting the generality of our agriculturists; but as this is foreign to the subject, I will leave this, as well as some other *mighty matters*, until another opportunity, and proceed to what is more connected with the subject on hand.

As absolute perfection is an attribute not attainable by humanity, it cannot be expected that any system of agriculture, either proposed or adopted, can be perfect. Every year's experience will convince the judicious farmer, that he has much to learn, and that, comparatively speaking, his knowledge is but small. This assertion may be hurtful to the pride of the self-willed and opinionative; but those who are truly what they seem to be, will at once acknowledge the justness of this observation. General rules for this or that operation, may and can be given; but to particularize the time and place must be folly in the extreme—the climate of Great Britain is so variable. I have repeated this so often, that the observation has in a manner become stale; but I am afraid that too much stress has been laid upon such general rules, and these directions followed perhaps contrary to the daily experience of the farmer himself.

When I say that drought is in general more to be expected than wet weather, my observations are only to be understood as applicable to the eastern parts of Britain. It is well known that in the western and mid-land counties, for the most part of seasons the reverse is the case. Being so, it is certainly highly improper for the farmer of one county to follow completely the directions given by the farmer in another, without taking into consideration the difference there must be in the situation of the soil, as well as in the chemical properties of it, independent of other matters, such as being in the neighbourhood of coal-mines, public-works, and so on; but leaving these matters to more able hands, or to be taken up at an after period, I will devote the present book to the consideration of wheat alone, as being the grain with which I am most conversant.

The soil being merely a mechanical agent, when wheat is to be put thereon, the first thing to be ascertained by the farmer, is whether or not this agent is calculated to convey the proper nourishment to the plant, and if not, what mode of treatment should be resorted to, to bring it into the state required. Ground nearly alike in its external appearance, will often be found inapplicable to the same treatment from a difference in the sub-soil; not that they are improper for the cultivation of wheat, but that they demand a different treatment to prepare it for the seed. A rich loam is reckoned the best for this species of culture; but if this soil rest upon a gravelly sub-soil in a high-land situation, it will be found far inferior to a lighter soil that rests upon clay. One soil upon wheat should never be sown in moss; in some seasons the crop may turn out a productive one, but this is rarely the case; for the most part, one-third of it is light grain, and the wheat on this soil is particularly liable to the blight. A heavy clay, with a northern exposure, is also inapplicable for the cultivation of wheat: the crop may be good in quantity, but not in quality, and the cost of production will be very high. Taking the matter in general, the lighter soil produces the finest wheat when properly managed,—the heavy soils the greater quantity; of course this depends much upon the season, and the time that the farmer puts his seed into the ground, and herein lies the principal part of his art.

Wheat, without exception, should be sown through the course of the autumn, when the weather will permit; if the seed-bed is to be a rich loamy, or a clayey soil, the sooner it is sown the better, as it is greatly benefited by a moderately dry bed in such a soil. But when the soil is light, it is advisable to be a little later, and, if possible, not before rain has fallen. When wheat is sown in a rich and heavy soil, it sends forth a stronger stem, from lying a little while dry before it springs; but in the event of it being sown upon a light or calcareous, or even limed land, when dry, it is either turned up in the seed-bed, or prematurely springs up in long slender stems, shewing a thin and sickly braird, which the first storm destroys.

Much has been said about manure for wheat, but the best is procured from the stable-yard. There is, however, a noxious article greatly used in the seaward lands, which it would be well for the farmers were they to leave alone,—I allude to sea-weed. It may not be believed, but it is a truth for all that, that this article always imparts a strong and disagreeable taste to wheat, potatoes, or any esculent plant; in truth, bread made from wheat that has been raised by sea-weed as manure, has the exact smell of burnt sea-weed, when taken out of the oven. This smell indeed leaves it gradually as the bread cools; but the bad taste it always retains.

The observations that I make here, relative to this stuff as a manure for wheat, was made on grain raised from ground that had not received a cart-load of dung for many years, but had been regularly littered with the weed or ware every season. Perhaps if a small proportion had been used, it might have been rather beneficial; but to use it wholly, is nothing less than folly in the agriculturist. The wheat I grant had a very fine appearance; its good look, however, was the best quality it had, being very deficient in weight, full of bran, and the bread, when cold, lessened in bulk, besides having the bad taste as mentioned above.

There is only one way that I know of, whereby sea-ware may become a manure really beneficial for wheat, which is simply this: to every six cart-load of stable-dung, put one cart-load of sea-ware, incorporate both together, and let it stand for four or five months; put it on the land immediately before ploughing, and deposite the seed as soon as possible after this operation; if the soil is of ordinary quality, and the season a favourable one, a good crop may be expected after the use of this composition; to use it in any other way as manure, is only spoiling the land for the sake of saving a few shillings. It is cheap, and that is its chief recommendation; but cheap as it is, the farmer that wishes to keep his ground free from grubs, flies, and weeds, will use it as little as possible. Perhaps it is not generally known, that this article possesses no virtue in itself; it is the soda contained in the water that it holds, which gives the nourishment. The weed itself, when dry, will give as little as the same weight of pebbles. The use of sea-water would be more advisable; the good qualities of the weed would be obtained without the bad, and at the same time would cost nothing, but merely the expense of carriage. At all events it should never be used for wheat, but in the manner recommended above, as a composition; for barley, it may answer on many soils, provided it is ploughed down whenever it is laid on the ground, and the seed put in directly, otherwise it is worse than labour lost.

It is the practice now a-days, and has been so for many years, to wash and steep wheat in different liquids before committing it to the ground. This practice may do no harm; but I cannot perceive what good it does, although it is adhered to with greater exactness than if it had been enjoined by act of Parliament; of course the seed should be always clean, but washing can be of no use unless the wheat happens to be smutty, and, in this case, it should not be used as seed, or if no other is to be got, then washing must be resorted to,—pure water, without any saline mixture at all, is the best thing that can be used for this purpose. To take out the lighter grains, the safest and quickest way is to use the fanners; but no washing when the grain is sound. After washing, it is necessary that it should be quickly dried, and quick-lime is what is used for the purpose, when the seed is to be laid in a cold and retentive soil; the application of lime may be beneficial, but for a light soil it is not. The lime throws forth a premature vegetation, that is, it springs too rapidly upon a light soil when lime is applied. Indeed, for my own part, I decidedly object to lime, either as a manure or a drying agent for wheat seed; when intended for a light soil, there is no doubt but that lime is a valuable article; but in my opinion it is often misapplied. If lime is to be used at all for wheat, it should be applied as a top-dressing, thrown slightly over the braird, before the winter storms commence; and not ploughed into the land, or used as a drying agent for the seed, as lime always produces what may be termed a species of fermentation whenever a thaw succeeds a frost. It must be evident, that, notwithstanding its usefulness on some soils, it is very improper for a light one, its most obvious tendency, if it does not produce a premature vegetation, is to throw the young plant out of the soil; with a top-dressing, this is not likely to happen, the lime not being incorporated with the earth. As for using it for the drying of seed, I hold it to be a piece of useless labour, to say nothing more of it; there is no occasion to wash the seed at all, unless it is in an impure state, and any fool can tell that such seed should never be used.

Perhaps the universal adoption of top-dressing for wheat plants might be more beneficial than at first could be imagined; it is only an opinion of my own, but I cannot help concluding that much advantage would result from the measure, both as regards a greater increase, and an earlier harvest. The ground being merely a mechanical agent, through which the nourishment is conveyed to the plant, it becomes a question of importance what that nourishment is, from whence does it proceed, and how is it to be managed, so as to produce the greatest good? The question may be answered by saying, that it is to the application of proper manure that the soil owes its fertility; but whether is this meant to apply to quantity or quality, for I find that our agriculturists are themselves divided upon the subject, and many of them imagine, that if they lay a great quantity of dung, no matter of what description, upon the ground, a good crop may be expected. However, my own opinion is, that quality, and not quantity, is what the farmer should be most anxious to obtain; one cart-load of good dung is superior to six of bad. The next question is, what is to be considered good dung? This is also a controverted point, which I think might be easily settled; that is the best dung which contains the greatest proportion of ammonia; consequently stable litter must be the best. Now, to come to the point in hand, namely, that top-dressing would be beneficial, that is, for wheat plants, I remark, that the ammonia which is contained in the dung is the principal cause of vegetation entering into the plant, in the form of gas, giving it a vigorous and healthy appearance; but as this gas has little or no affinity to the soil, or at least, has a greater for the plant, if the plant is not vigorous enough to absorb it all, it naturally makes its escape, and mixes with the atmospheric air, whereby its useful properties is lost to the agriculturist. Thus, when lime is put upon a light soil, the dung is decomposed; or in other words, the nourishing gas is all dispersed, before the plant arrives at that stage of its growth to receive much benefit from it. Now, were the lime not incorporated with the soil, nor put upon the seed when sown, but merely sprinkled upon the young plants in the beginning of the winter quarter, the ammonical gas, instead of escaping while there was no vegetative power in the soil, would be kept in a latent state, until the return of the spring, and then would exert its power with double force. By top-dressing, the lime, instead of turning up the wheat in the seed-bed, would become a protection to the young plant, through the blasts of winter; and, being gradually washed down by the rain, or melting of the snow, would combine with the ammonia of the dung exactly at the time when their united energy would be most beneficial, that is, in the spring quarter. Perhaps many of our farmers will think that what I have said savours too much of the romance to be of any service; I frankly confess, that what I now recommend, I never saw practised, but I am conscious that much good would result from the adoption of the measure; the experiment might be tried upon a small scale at the first, and, I dare say, that our farmers are not *yet* above taking a good advice, although it comes from one that is not an agriculturist by profession.

Much care is requisite in selecting proper wheat for seed, and in all cases none should be ever taken that has been long in a granary. I have seen whole fields of wheat that had to be sown the second time from this cause. There are a great many, even of our professed farmers, ignorant of this circumstance, that when wheat has been for any time in granary, the bud of it becomes a living animal, minute indeed, so that it cannot be perceived without the aid of a microscope; but, small as it is, it soon does a deal of mischief, rendering it, in the space of a few weeks, unfit for seed. Indeed, so industrious is this little animal in the work of destruction, that a few months will suffice it to render the grain unfit for any purpose at all, and when once it makes its appearance, its ravages cannot be stopt, but by either grinding the wheat or putting it on a kiln. Grinding it is the best cure, which should be done immediately after it is discovered that such an animal is there, for if it is suffered to continue its work for a little space, the wheat will be so much destroyed, that in grinding, the bran and flour will come through the mill-eye in one body, and no art of man, although aided with the best machinery, will ever separate them. It is something remarkable, that although the wheat is thus destroyed, the evil that is done can hardly be discovered; there is no appearance of external injury, and on breaking the pickle it will appear quite sound in the heart, notwithstanding which, no fine flour will be got from it. The readiest way to discover whether or not the animal has made a lodgment in the grain, is to inspect the vacant spaces of the loft, and if there be any movement amongst what dust may be collected, analagous to that of mity cheese, it is a sure sign that the worm has got into it, and let not the farmer take such for seed; if he does, he is only throwing away his property to no purpose,—he will never raise a crop from such seed. To the baker I would also give this advice; be cautious how you purchase grain that has such sure symptoms of destruction amongst it, try a small parcel of it at first, and see how it turns out at the mill, that is the place where it can be properly tried.

It is requisite to have changed seed every two or three years, as wheat soon degenerates, unless the land is kept in the best possible state; moreover, if wheat of different qualities are repeatedly sown upon the same farm, they will soon approximate each other, that is, the good, in the space of a few years, will soon degenerate into the state of the bad; thus, if red and white are sown near to each other for a few years, the white will become red also. However, the farmer may soon learn when it is proper to change his seed, by the appearance of blandered heads in his field; that is, heads assuming a reddish hue, producing a long clear reddish pickle. Wheat of this description makes an excellent flour, but, according to the present state of agriculture, such would be very unproductive to the farmer as seed, and if he does not choose to change it, or is unable or unwilling to give proper labour and manure to his ground, he ought at least, for his own sake, to pick out the blandered heads from that portion he intends for seed. It is something strange, in my opinion, to look upon a field of wheat when in the ripening process. Let any person of observation inspect even a hundred yards of any field of wheat, and he will find at least thirty different species of wheat in the same field—should such things be?

The next consideration is, what is the best preparative crop for wheat? Indeed this is settled long ago, but in many places, upon a very bad principle; it is surely no part of wisdom to have wheat after potatoes, every alternate season upon the same land; since the introduction of this root, however, into extensive cultivation, a great quantity of wheat is raised, of which it is the preparative crop—the reason given is, that potatoes are a good crop for cleaning the land, this is granted, but they are a scourging crop at the same time, and a great deal worse than oats; further, the wheat raised after potatoes is always deficient in weight, full of bran, and naturally soft in the baker's hands, so that it will not produce what may be termed good bread, without a mixture of better grain. Lee-land is often sown with wheat, but this practice is not to be recommended, unless the soil is of the very best quality; at all events, wheat should never be sown after grass upon a clay; the grain may be good, even of the best quality, but the crop will in general be thin, and the farmer would come better to his purpose were he to substitute oats instead of wheat for the first crop, and have wheat to follow, giving the land a sufficiency of manure.

I know that it is not common to have wheat to follow oats, as oats are reckoned a scourging crop, there is, however, a deal of prejudice in this supposition. Oats are not half so scourging as potatoes are, and yet none ever scruples to have wheat to follow them. Oats have one good quality as a preparative crop, which the potatoes are deficient of, that is, the succeeding crop of wheat will, in general, be greater, and, without fail, of an excellent quality. Beans, peas, and pulse grains of all kinds, are reckoned good preparative crops—and so they are; wheat, in general, after them, being both good in quality and great in quantity; indeed, such wheat is always reckoned the best in the market; but, for my own part, I prefer that after oats, as producing a finer and a stronger flour. Turnips are a valuable root to the farmer, but as a preparative crop for wheat, it is very bad; all spring-sown wheat is of an inferior quality to the baker; that after turnips is particularly so, as it will not bake into loaf-bread at all when used alone; it is also in general light, though not always so; yet, although this may not be the case, the flour is always unproductive, and appears, when baken, of a very bad colour. The wheat, after fallow, is generally good, but as I have condemned as useless the keeping of fallow, I will say little about it at present, only, I may observe, that wheat will be as good after oats as beans, if proper labour and manure is given, as in the best wrought fallow that ever was ploughed in the British isles.

CHAPTER II.

The subject continued—Cleaning Operation, and Blight—the cause of it—How much Board should be allowed for the preservation of Grain, Smalt, or Blacked Wheat—Method of our People, &c.

Proper seed being selected, the ground duly prepared, by labour and manure, the farmer's next business is to deposit the seed in a proper time, that is, if possible, through the course of the autumn, taking the heavy soils first, and making the lighter ones follow, according to their order.

The manner of depositing the seed, I have said before, should be either by drilling or planting, broad-cast is both a waste of seed and ground; moreover, it prevents the cleaning of the plant afterwards; and, indeed, if any operation, except top-dressing and the sowing of grass-seed, which, in my opinion, should never be done, when it can be avoided. As soon as wheat is got into braird, it should be hand-hoed, and shortly afterwards a top-dressing of lime laid upon it, and should it get too rank, which will seldom be the case, it may be cut, or even rolled down, being much better than putting sheep upon it.

Towards the commencement of the spring quarter, the plant may be hand-hoed the second time, and the earth slightly raised up, removing any weeds that may have vegetated. It may be then proper to sprinkle over the plant that water which could be collected from the stable, byre, and dung-hill, and, on a deficiency of this useful manure, common salt may be used, diluted with common water. There are many who recommend the sowing of salt with the seed in its dry state, not only for wheat, but other grains, as well as carrots, turnips, cabbage, &c. at the rate of from ten to twenty bushels an acre. Salt is an excellent manure, when judicially applied, but it requires an experienced agriculturist to use it to any extent, the least excess of it is more apt to retard than promote vegetation, and perhaps those who are within reach of the sea, may find it more to their benefit to use salt water alone, sprinkled on the plant, instead of sowing salt with the seed. The difference will be, that salt is only to be applied once in a season; but, in using the water, if the season is dry, the plants would require watering several times, until the plant overshadowed the soil.

When wheat has reached this state, or just when it has got into the shoot blade, it should be carefully cleaned from weeds of every description; and this operation, so necessary for the farmer's interest, the farmer should over-see himself, if possible; it is an operation often very imperfectly performed; the work people, if not attended to, in general give little attention to the weeds that do not rear their heads above the corn; hence it often happens, that when a field has been to all appearance properly cleaned, in a few weeks a new crop of weeds will spring up, and from this circumstance it has passed into a proverb, that useless things grow fastest; whereas such is not the case, for if the field had been cleaned properly at first, no more weeds would grow up, for that season at least.

As soon as the wheat has got past the shoot blade, and beginning to bloom, it must be left to itself, the art of man can do no more, and not a living creature, if possible, should be suffered to go through it. Blight is reckoned a disease in wheat, and so it is, and a very bad one too, but this disease proceeds from nothing else than the bloom being thrown off by some means or another, and here may be observed the wisdom of those laws made and enacted for the preservation of hares, rabbits, pheasants, and so forth, who, although they may give sport to the proprietor, costs the farmer many a pound in the year; in fact, more than what would support the poor of the land. That these creatures are destructive to the young plant is well known, but perhaps it is not generally understood, that this racing and flying about amongst the corn, whilst in bloom, is productive of far greater mischief than all that they can devour as food. The blooming period is the most critical of the farmer's hopes, and how cruel is it to destroy these hopes, by the preservation of animals so well fitted for the work of destruction. I presume that none of our landed gentlemen ever make any deduction from their tenants' rents under the name of board-wages for these creatures. In my opinion, it would be a great addition to the game-laws, were there a clause inserted, making it imperative upon every landed proprietor that preserved game, as it is called, to return every season to their tenants fully twenty per cent. as keep for these creatures, being what may be calculated with justice as the farmer's yearly loss by their preservation.

It is true, that a high swirling wind will throw the bloom of wheat, from whatever quarter it blows, and a long continued eastern gale will blast it; but I am firmly persuaded, that were it not both fashionable and honourable to preserve useless creatures, it would have been discovered long ago, that for one head of wheat blighted by unpropitious weather, there are ten by our *protected game.* This of course will be disputed by many, but let it be considered, that the bloom of wheat is easily thrown off, and from whatever pickle it is unnaturally taken away, that moment that pickle ceases to grow, and in whatever stage of its growth it may be, it to all intents and purposes becomes a blighted pickle. This being known, methinks the landed proprietors should think it sufficiently severe, that the farmer has to encounter the risk of ungenial weather, without being obliged to suffer a heavy plague, under the name of game, to torment him, and eat up that which should go to the support of his family. Is the preservation of game consistent with the enactment of corn-bills? This is a question that I, as well as many of my countrymen, would wish to see answered in a satisfactory manner. But, and if,—these two insignificant words, spoil many a good story, as experience has often told us.

As the farmer must not go amongst his wheat while in the blooming process, so he should pay particular attention to have it cut down before it get too ripe; there are often great errors committed by the farmer in this respect. It is generally understood that the soil is merely a mechanical agent, to convey nourishment to the plant, and it must be self-evident, that when this nourishment is cut off, the grain can receive no benefit from standing longer on the ground. Whenever a stalk gets whitened about two inches from the head, it should be cut down directly, although the pickle should feel soft, as it can receive no more nourishment from the soil, that nourishment being cut off by the intervention of the ripened straw; besides, the action of a strong sun upon the grain while in this state, has the same effect as if it had been dried in a kiln, often rendering it unfit either for seed or baking.

To keep wheat standing upon the ground after it has ripened two inches below the ear, does no manner of good whatsoever; contrariewise, a deal of evil results from the practice. If two fields of wheat of equal quality be cut, the one sharp, and the other dead ripe, there will be found in favour of the farmer fully ten per cent. upon that field that has been sharp cut; nor is this all, a greater quantity of flour will be produced, and also of a finer quality from this sharp cut grain, and the bread made from it will at the same time be proportionably greater also. This is easily accounted for on the well known fact, that kiln-dried wheat will neither produce a fine flour, nor bake into good loaf-bread, and as wheat that is suffered to remain standing until it is dead ripe, exposed to the action of the sun, is in a manner kiln-dried, the consequence is, that when it comes to the mill, there will be a greater proportion of bran than what should be; and the fine flour that is obtained, will not only be deficient in quantity, being bad baking flour, but also very swarthy. Moreover this, over-ripe wheat, puts it into the corn-merchant's power to be a great rogue, if his inclination leads him that way; but this is a secret, which I believe the worst of our farmers do not wish to look into, much less practice. However, I may give a hint upon the subject afterwards.

I speak principally of wheat, that it should be cut sharp; but the supposition is, that other grain should be also cut sharp. Oats are extremely liable to shed the seed when in a dead ripe state, and the straw of barley gets very brittle, so that the least shake will snap the ear from the stalk, all of which is lost to the farmer. As it is advisable to cut down grain before it is fully ripe, so, in this case, it must be considered that it should be completely dried before being taken into the stack-yard, particularly barley, as the least moisture in the straw will soon heat the whole.

There are seasons, however, in which this rule of cutting sharp will not apply. I mean when there is little sun, which sometimes happens, to ripen the grain; or in a wet season, when this is the case, the grain cannot be too ripe. However I have from my own observation concluded, that our farmers in these matters are guided by the rule of contrarieties, in as much as they cut their grain when they should let it stand, and when it should stand, they cut it down. They will very contentedly allow their grain to stand roasting in the sun long after it is fully ripe, although they are perfectly aware that they will loose nearly ten per cent. upon the reaping of it; but if it is a wet season, then the corn is cut, and the fields cleared, as if the whole was done by the rod of the necromancer. Such conduct must certainly be condemned. What must be the consequence in a wet season of cutting corn in a green state and harvesting it full of moisture? To say the least, the farmer is only giving himself additional trouble, as it is ten to one but that he has every stack to recast. There is no doubt but that it is very alarming to the agriculturist, when wet and stormy weather comes upon him in the midst of his harvest operations; but surely it is no part of wisdom to hurry in grain into the stack-yard in an imperfect state, because a little rain has fallen upon it. The state of the weather is under the guidance of that Being who is never weary in well-doing, and who orders all things for the benefit of man; why then should our farmers dispose of the interposition of that providential care, which provides food for the stork in the wilderness, and clothes the lillies of the valley in attire far more lovely than the sumptuous glory of the wise King of Israel.

There is another practice of the farmers that is inconsistent with good management, which I shall here take notice of, namely, they begin in harvest the labours of the day too early. When the harvest is an early one, it is of less consequence how soon the work is begun; but when it happens to be late, a sickle should never be put in until the dew that is fallen through the night is dried up—a copious dew is more pernicious than a smart shower of rain; and if grain, barley especially, is bound up with it upon it, a very little additional moisture, with a sunny day, will make it sprout. The consequences of having sprung corn is well known; but perhaps the farmer may think the day will be rather short were he to delay beginning to cut until the night dew was dried up: then let him spread the corn on the ground, and not bind it into sheaves until the sun has past over it for a few hours. Indeed, if grain is cut sharp, it should never be bound up until the evening, at least it should only be set up in single sheaves for a few hours before putting it into stook.

The diseases peculiar to wheat in this country are the blight, smutt or ball, and rust; of blight I have spoken before, that it originates from having the blossom brushed off,—the rust is occasioned by a sultry and close atmosphere, when there is no sun after warm showers. Blight cannot affect the pickle after it is full, but rust may attack it any time, with this difference however, that if the pickle is fully formed, the rust, comparatively speaking, does little harm; but if it is not, at whatever stage of its growth the rust attacks it, it stops immediately,—as blight is a deprivation of all vegetable life. Whenever a field of wheat is attacked with it, that field should be cut down directly, by doing this, the straw may become of value for many useful purposes; but to let it stand, will incur only greater loss, as in a short time the straw will also get useless for any thing but the dunghill. Rust may be termed a deprivation of vegetative life too; but its effects upon the full ear is not of that description, as to create any alarm, provided afterwards the season keep dry and warm, with a little wind; but on the contrary, if the weather is calm, wet, and dry, danger is to be apprehended, not from the rust destroying the grain, but from its preventing the sun having its due effect in the ripening of it; hence when it comes to the barn-floor, the rust will be gone, but will have left behind it dried and shrivelled pickles containing little or no flour. Ball, smut, or blacken, as it is differently termed in different places, is a pernicious substance, that in many seasons grow up very plentifully amongst wheat, and in nature and colour, approaches nearly to that of soot. Various reasons have been assigned for the growth of this noxious article; but I believe that the true reason has not yet been given, at least there has no preventive yet been discovered. Perhaps if the matter was properly investigated, it would be found, that the chief cause of its growth arises from the application of improper manure;—that it does not proceed from the state of the atmosphere alone, as has been asserted by many, is evident, for the ball is there on the first forming of the ear; neither can it be said that it proceeds from the ball being sown with the pure seed; for independent of the cleaning process, which the seed is needlessly subjected to, the ball possesses no vegetative life whatever.

I have indeed heard it repeatedly asserted, that the smock arising from large towns, and various public-works, was the cause of the prolific growth of ball; but those people who say so have certainly not taken leasure to look about them before they made this assertion, as daily experience proves that this is not the case. Were it true, the country districts would in general be free of it, whereas they are not, and if there is any difference on ground near to, or removed to a distance from large towns, it is that the country districts produce it in the greatest abundance. Lightning has also been assigned by many as the cause; but were it so, particular spots would be burned up at once, whereas it is seldom that two balled heads are to be found together; in short, the cause is still a secret, and unless we assign it the application of improper manure, I frankly confess that I can give no better.

Perhaps in after ages a solution of the enigma may be found by our philosophers, when they begin to investigate the wonders of electricity, combined with the nature of the soil,—the substratem on which the soil rests,—the nature of the manure employed, and the chemical properties of the grain in the different stages of its growth. Then, and not till then, will a preventative be discovered; but ere that time arrives, our surmises must be merely conjectural, and the only preventative we can resort to, is to pick it out.

But let the cause be what it will, that ball grows up amongst wheat, (oats are also liable to the same disease), one thing is certain, that it is a pernicious article, and spoils every parcel of grain in which it is to be found. Generally, however, when found in wheat, that wheat will be naturally of a good quality, and will make excellent bread if the ball is removed: this the farmer may do, if he chooses to take the tedious operation in hand, of going through the fields step by step, and picking out the blackened heads before it is cut down; he may try, but he will never take it out by machinery. In the ordinary process of cleaning, that is, putting it through the fanners, a great deal of the ball is thrown out; but it is only these pickles that are lighter than the sound grain, the heavier pickles comes through whole, or is broke into powder, by which means the good grain is made so much the worse for the mending. The ball being broken, the powder fixes itself to the sound grain with the tenacity of the firmest glue, imparting a dirty blue colour to the ends of every pickle; one balled pickle will spoil a thousand good ones, and if the wheat is ground with this powder upon it, the bread made with the flour will be as black as soot.

Some people recommend the washing of wheat to remove the smut or ball; but this is a very tedious process, and at the best, is but a partial one; the whole pickle indeed will be floated off, but it is neither one nor two washings that will remove the adhesive powder from the sound grain; moreover, when washed, it must be kiln-dried, which spoils it for the baker's purpose.

If I mistake not, it is not long since some persons took out a patent for the cleaning of balled or smutty wheat. How the patent will pay him, it is not for me to determine; but I certainly think that it was a foolish attempt to procure a patent for such a thing. This patent is of no use to the agriculturist at all, and the baker, or rather the miller, can clean the wheat in a superior manner, and with less expense, without either washing or drying, by putting it through the barley-mill. This is a very simple operation, and has been practised upwards of thirty years, long before any person ever dreamed of taking out a patent for such a purpose. The operation consists simply in reducing the wheat to the state of made barley before it is ground. Barley-milling, however, although, if properly done, it takes out the ball, and makes the flour perfectly clean, yet reduces the value of it in quantity greatly. A quarter of wheat that has been barley-milled, will on an average lose two stone of fine flour more than that which is not barley-milled, besides the additional waste, independent of the unproductive measurement of the bran. A quarter of good cleaned bran should weigh fourteen stone; but if it has been barley-milled, a measured quarter of the bran will weigh from twenty to twenty-two stone; from a calculation that I made upon a grist of ten quarters that had to be barley-milled, the value of it was lessened eight shillings per quarter, at a time when the top price was forty shillings.

There is another noxious article suffered to grow up amongst wheat, and I am persuaded that it is from mere carelessness in the farmer; what I allude to, is a weed known under the name of paple, that produces a seed rather larger than mustard-seed, containing a white flour, but black in the skin. The farmers might easily root out this weed when in flower; but their carelessness in suffering it to grow, proceeds, I believe, from an idea that it does no harm; they are, however, mistaken in this matter, for although it contains a white flour, it is no sooner wet with water than it directly turns black; besides, its nature is opposite to free fermentation, as this stuff cannot be taken out with the barley-mill. It would be wisdom in the farmer to weed it out, which might be easily done, would he only employ people do it. Indeed paple, when in bloom, is in the eyes of many, a pretty flower, and as children are often employed to weed corn, it is perhaps for the sake of its beauty left by them in the field. The beauty of it, however, and its pleasant smell, should be no protection to it, for, notwithstanding these good qualities, it is destructive to the grain, and all possible means should be resorted to, to have it destroyed.

It cannot with propriety be said, that wheat is diseased when paple is found amongst it, it is rather an evil of man's permission, and might be easily taken away, if the farmer thought proper to do so. His best plan is not to permit it to grow, and if the ground is cultivated as it should be, the weed would be soon rooted out. Whenever ground, naturally good in itself, is suffered to run waste for the want of manure and labour, there the paple springs in all its beauty,—a sure indication that there is something amiss in the farmer's management. It certainly adds nothing to the beauty of a sample of wheat, to see it full of this stuff, and as certainly it can add as little to the value of it; neither can it be said that the seed of goose-grass or wild-mustard is a valuable acquisition for the farmer to take to the market, yet how often do we see even the best of wheat full of it. There is no excuse for this; let the grain be cleaned properly when in the field, and it will save both time and trouble in the barn, and enable the farmer to bring a clean article to the market. I presume he does not wish to have these things to fill up the measure, making up any deficiency in the proper grain. Where weeds grow, corn will also grow; but it is folly to expect a full crop of such at the same time.

CHAPTER III.

Useful Plants require attention—Weeds not all useless—Wheat, British and Foreign—all not foreign that is sold as such.

THERE is not an acre of ground upon the surface of this globe, but what has a plant peculiar to it, on which it vegetates and comes to perfection, from whence, if they be removed, and then neglected, in all probability they will soon perish. It is observed, that if new soil be brought up, perhaps eight or ten feet from the surface, various new species of plants will make their appearance. Well may we ask, where has the seeds of these plants been; are they a new creation, or have they been preserved in such a situation since the foundation of the world; and if so, by what means has their vegetative powers been preserved for such a period of years, without exerting that power in a soil that is their native bed? If it is said, that the depth of soil in which they lie, prevents them from springing forth into flowers, and bringing forth a seed to perfection, the question still remains to be answered, how are they preserved? We know, that if any grain with which we are acquainted is put into the ground below a certain depth, it will soon be destroyed, and that others should be preserved with which we had no previous knowledge, in the same place for ages, is most astonishing. Can our greatest philosophers give a reason why it is so? We may resolve it into the will of the Almighty; but man, even the greatest and worst of the human race, can go no farther.

Plants, under the denomination of weeds, grow everywhere without culture, and we have nothing to do but to neglect the soil, and weeds spring forth in abundance; these are termed useless to man, and an incumbrance to the soil, but the assertion is too general; nothing was made in vain, and many of these weeds are truly valuable, could man but discover the uses to which they should be applied. Perhaps if many of them were cultivated in proper places, many latent virtues would be discovered; but it must be confessed that a corn field is not the most proper place for their cultivation, in such a situation they are extremely hurtful, and should be extirpated as soon as possible.

Although weeds grow without culture, and even against the farmer's wish, those plants which we deem beneficial must be cultivated, and great attention must be given to them if we wish them to be serviceable unto man. With bread-corn grasses this is particularly the case, even on the land of their first production. A plant that is indigenous to the soil will always grow, springing anew every season. Bread-corn will do the same every season, producing a seed capable of re-production, but in a few years, if the fostering care of man is withdrawn, the plant will soon degenerate, every succeeding season producing a seed less and less, until it is reduced to a mere husk, containing indeed the power of vegetation, but nothing more. An exemplification of this may be seen every season, from the great quantities of wild rye which is to be found in almost every road-side, from hence we infer the value of the agriculturist's labours; and when we look at the long list of grasses that produce bread-corn for the use of man, it ceases to be a wonder that that personage who first pointed out their value was considered as a divinity, and worshipped as such for ages by the heathen world.

Of all the grains with which we are acquainted, wheat is the most generally diffused. Rice may perhaps support as great a number of people, but the cultivation of it is circumscribed to the warmest climates. Wheat will grow in every temperate clime, not indeed in equality of condition, an excess of heat makes it run into straw, and the opposite extreme, if cold, prevents it coming into ear. There are various causes in operation that tend to the production of different varieties of wheat from the same species, such as the nature of the soil, the manure, the preparative crop, and the time that it is put into the ground. It is true, that such changes are not made in a season, but the effect follows through the course of time, and it may with truth be affirmed, that there are as many varieties of wheat as there are of soils in the British empire. Some of these are good, remarkably so, improved by cultivation, while others are bad from inattention to their nature at the first, and not giving them a seed-bed congenial to it; it is folly in the extreme to put fine wheat upon a cold and bleak soil, such a soil is not fitted for it, and a good crop will never be produced; but where white wheat will not grow, red will grow to the greatest perfection.

But let the British wheat be what it may, the baker, for the purposes of his trade, must resort to an artificial division, that is, into winter and spring wheat, and again from light and heavy soils. Winter wheat includes all that is sown betwixt August and the latter end of November, what is sown after this period comes under the denomination of spring wheat; all may be raised from the same seed, but there is a mighty difference in their respective qualities when put into the baker's hands.

A few words will serve for spring wheat, that is, it is not good, not even the best of it; none, without a mixture, will make a good loaf; if sown after turnips it is particularly bad, and no baker should ever have a particle of it in his possession. In general, spring-wheat has a very good appearance, and those who are not acquainted with its nature are very apt to be imposed upon by its look. I have known it the heaviest in the market, and bleed well at the mill, giving a fine looking flour; but when it was brought to the bake-house, it was of little value, it would not bake into loaf-bread, and when it did come to a fermentation, it was very imperfect,—the bread being always heavy and black; there is also a deficiency of from four to six quartern loaves in every sack.

There is a winter-wheat nearly as bad as the spring-wheat, which grows upon a cold stiff clay, it is easily known by its dull and blackish colour, and always feels damp in the hand; this wheat is very difficult to manage when baken alone, but it may be greatly improved by the addition of a little sugar to the spunge—a pound to a sack of flour; but it would be as well for the baker to let this wheat alone, or, in the purchasing of it, to recollect that he will have from six to seven stone of bran from every quarter. This observation is applicable to wheat sown upon a mossy soil, with this difference, that the moss-sown wheat is small in the pickle; I mean, that it is unproductive of fine flour, for in general it bakes well.

When the baker purchases any of these kinds of wheat, he should remember the value of it when made into bread, and pay accordingly, but they should never be baken alone, even the best of wheat is greatly improved by being highly mixed, much more wheat of this description.

It may seem something paradoxical to say that the best looking and the heaviest wheat is not often the best for the baker, but such is the case; spring-wheat looks remarkably well, yet it will not bake into loaf bread; wheat from a heavy bleak clay is in general heavy, yet it gives a small return of fine flour in comparison of the weight of the grain, and it is very difficult to bring it to a fermentation. If the baker wishes for a good article (and he cannot get it too good) he must reject spring-wheat altogether. But, it may be asked, what kind is he to choose? That which is termed winter-wheat. Of winter-wheat there are some better than others, arising from different causes; in general, moss-sownwheat is not good,—raised from sea-weed is a manure very bad, and that from a heavy black clay, but indifferent in quality. The bad nature of these wheats may be overcome in a great degree by a mixture of an opposite quality; the freest working wheat is taken from a light soil, and the best is after peas, beans, and oats. Wheat, after these last mentioned grains, never fails to be good working wheat, that is if the soil is good, but sometimes there will be often wheat found after potatoes or grass that will work but indifferently, and even mixing the flour of each together will make no difference; but if the wheat is mixed before it is ground, a great improvement in the quality of the bread will take place. In general, we find that wheat from light land, if it has been limed, works rather free, and from a heavy soil, not free enough, consequently the different kinds should be mixed together, to produce betwixt them a good loaf. I may, in this place, again take notice of lime as a manure for wheat, at least what effect the lime has upon it in the baker's hands. If possible he should never use such alone, if taken from a light soil; after a dry season, it is almost an impossibility for him to make sweet bread with it. If he give it a ripe spunge, it is sure to be sour, and if he do not, it is as sure to be damp and heavy, and will give but little satisfaction either to the seller or the buyer: to the immediate use of this article we may ascribe the one half of sour bread that is found in the summer season, and not from inattention on the baker's part; for, in fact, it is not in his power to make sweet bread from it, let him do what he will.

There is a great deal of red wheat sown in the country now, as it is of a hardy nature, and will come to perfection in bleak soils sooner than wheat that is white; the quality of it, like that of other kinds, depends greatly upon the soil, manure, and preparative crop. Sometimes this wheat turns out an excellent crop, and in general it weighs heavy, and, if properly managed at the mill, will give a fine sack of flour. There is, however, a great deal of bran in it, and more than a due proportion of second flour, and to the baker this portion of it is only half the value of the seconds of white wheat.

Buck wheat possesses none of the qualities of other wheat, but merely produces an ordinary flour, that is not capable of baking into bread; it is, however, a useful grain, and if the farmer consulted his own interest, he would never want it. Both straw and seed form excellent food for cattle, poultry, &c., and being extremely rapid in its growth, it may be sown in the latter end of May or the beginning of June, if intended to take a seed from it, but if it is wished for green food only, it may be sown in September. On the most barren spots this grain will vegetate, even on places where hardly a pile of grass will spring, hence its value to the agriculturist; but these are the qualifications that render it unfit for the baker. When it is wished to preserve the seed, it must be cut very sharp, and in all cases with the dew upon it, or two-thirds of it will be shaken out of the ears.

A few years ago, some samples of wheat was brought from Spain; the Andalusian is reckoned the best in that kingdom—what is cultivated here is known by the name of Talavera. The cultivation of it, however, has not been extensive, indeed many farmers could not get half-price for it in the market, and were under the necessity of giving it up altogether. It is in appearance a coarse looking green, but produces a strong and excellent flour when mixed with some of our native finer wheat, and were the bakers properly aware of its good qualities, it would soon be in greater request among them.

It must be evident to every one the least conversant with wheat, that general rules for the selecting of it cannot be universally applied, as it is seldom that two parcels of it can be got alike. I do not speak of the difference in the seasons, but of that difference which arises from the nature of the soil; these, however, are little faults, in a good season, that may easily be overcome, by mixing the different kinds together; but as it is not every baker who can procure this without a command of ready money, which many of them do not possess, those who are in this predicament will find it their interest to purchase only the best. All wheat that is blackish in colour, such a man should reject, and rather make choice of grain from a light than a heavy soil. Spring-wheat he should never touch, he will never make his own money out of it, independent of having bad bread, and one bad loaf will do more harm to the poor baker than a thousand will do to the rich one.

When there is barley amongst the wheat it should be rejected, the best barley spoils the best flour; but oats will do no harm, and indeed where there are oats the wheat will always be found of a superior quality. This statement is contrary to the received opinion of many, and I have seen many an excellent parcel of wheat rejected in the market, even when offered at a low price, for no other reason than that there were oats amongst it; neither buyer nor seller knew the value of the article they had amongst their hands.

There are many bakers who will pick out a fine sample of wheat without looking at it, merely by thrusting the hand down the sack in which it is put; if the grain feel dry and the hand goes freely down, they pronounce it good; but contrariwise, if it feel damp, and the hand does not go freely down, they call it bad. The rule is on the whole a good one, but there are many exceptions to it, and it is far from being an infallible guide. A little kiln-dried wheat, well mixed amongst it, will make it feel kindly in the hand, although it may be of a very inferior quality, and the very best grain, if it stand exposed for half-an-hour in a damp day, will naturally feel damp to the touch. The colour of wheat will tell the quality of it as well as any test that can be depended upon by the feeling.

The best way to discover the quality of wheat, if the eye is not to be trusted to, is to chew a little of it, and if there is a tough elastic substance remains, if the wheat is not spring wheat, it may safely be ventured upon as good; but otherwise, if what remains is short and rotten, the wheat may flour well, but it will not make a good loaf without a mixture. Should there be any kiln-dried wheat newly put in, the person chewing it will feel as if there were ripe and half ripe peas in his mouth, but if the mixture has been a few days together, the deception cannot be discovered in this manner. The purchaser must then inspect the substance that is left after chewing it, and if nothing remains but a portion of rotten bran, there is either kiln-dried wheat amongst it, or then the grain is malted; and, I suppose, that it will be needless to observe, that in either case, the wheat is unfit for the baker's purpose, and will not bake with loaf-bread by the ordinary process.

The baker, by a little attention, will soon learn to distinguish one kind of wheat from another by the colour, all of them, in a small degree, partaking of the hue of the soil in which they grew. There are other methods to discover this, but not until the grain is reduced into flour, but of this I shall treat hereafter, when I come to speak of that article, and will only observe here, that wheat from a heavy soil, if good, gives the finest flour in quality, and that from a light soil the finest in colour.

The wheat in Great Britain cannot be called the finest in the world, yet I believe that there are not many countries where, upon an average, it is superior. There are many of our British bakers who prefer a foreign article, and when importation is allowed they are indulged in this respect. Without doubt there are many fine samples of wheat brought from abroad, yet with all their boasted good qualities, I apprehend that the baker would come as well to his purpose (unless in particular cases) to be content with the produce of his own country. He will find, on a strict comparison, that two-thirds of British wheat is equal to any that is imported from other nations; it is seldom indeed that foreign wheat can be procured sweet enough to make bread of by itself.

That which goes under the name of Dantzic has obtained a celebrated name, I grant indeed that when procured sweet, it is a good article; but that it deserves to be ranked above our own, I cannot allow. Its good qualities, for the baker's purpose, arises from so many kinds of different soils being mixed together, and not from the inherent quality of the grain; our own growth would be as good, if not superior, if the same mixtures was resorted to, which it is presumed is sometimes the case, and palmed off upon the purchasers as foreign, when it bears a higher price in the market. But whether this is the case or not, one good quality, it must be allowed, the British wheat posseses above that of foreign, namely, it will in general be sweet in quality, that very little of our imported article can boast of; indeed the treatment that a great deal of it receives before it is brought to this country, is but ill calculated to keep it in a sound condition, and it is really a matter of surprise to see so much of it so good as it is.

It is well known to the corn-merchants, but perhaps not generally to the bakers, that very little of that wheat which is sold as Dantzic in this country, is in reality the production of that place. It receives its name alone from the port at which a part of it is shipped. Granting that it is all foreign wheat that is sold in Britain as Dantzic, yet the name is very ill applied. Dantzic is merely the port of shipment; ninety-nine quarters out of a hundred being brought hundreds of miles from the interior, and a great part of it floated down the Vistula in open-decked vessels, exposed to every vicissitude of the weather. On the supposition, that no rain falls during a voyage of two or three weeks, on what condition can the grain be, exposed the whole time to the action of the burning sun by day, the copious dew of the night, and the spray of the river? Is it in a fit state for putting on board of ship? It cannot be; yet in this condition it is often shipped, and sent to this country. The consequence is, that in a few days after the vessel has sailed, if the weather will permit the hatches to be taken off, a smock will issue from the hold, as if the vessel was on fire, accompanied with a most intolerable stench. How such grain can be called good, after being in such a state, I have yet to learn, and perhaps the importers have this also to learn, that when they bring such stuff to the country, they are only importing a cargo of slow poison for the benefit of their native land. It is true, that the grain is not all brought smocking hot to the country; still I contend there is a great probability that much unsound grain is amongst it, and while sound grain of our own can be procured, the British baker has little temptation to buy it.

Of late years a good quantity of Pomeranian wheat has been brought to this country. This wheat is reckoned inferior to the Dantzic; but in reality it is often better, being in general sweeter. It does not indeed weigh so heavy, nor flour so well, but the quantity obtained is as good as Dantzic; like all other foreign wheat, it is seldom in a condition to bake alone, but giving a strong flour, when mixed with good native wheat, a plump loaf will be the result. As it is, however, light, and full of bran, the price of it, to pay the baker, should be from five to six shillings a quarter below the average of the home market.

From Russia there are two kinds imported, the white and the black, both of them but of an indifferent quality, being very small in the pickle, very brany, and making a swarthy flour. A little of the white may be used as a mixture, but then it must be only a little, one to twenty is sufficient, if the baker wishes for a fine looking loaf in his shop; as for the black-wheat, no baker should ever purchase a bushel of it to make bread of, and the best bargain that he can make of this stuff, is to let it alone.

American wheat nearly resembles our own; but coming from a distant place, of course it must be a great deal better,—people who maintain this opinion are welcome to do so. I only observe, that I have known the average quality of East-Lothian wheat offered to the purchasers as the best American, by an honest corn-merchant. It must be observed, however, in mitigation of the censure upon this honest man, that the American wheat at that time brought a higher price in the market than the British did, and probably the conscientious gentleman thought that there was no sin in making fools pay for their opinion. The British wheat was the best; but many of our bakers did not think so, and would not accept of it until it was offered to them under the denomination of American.

The same gentleman that offered British for American wheat, once sold a parcel of rotten wheat, that grew in Angus-shire, to some country bakers, as the best Dantzic. The story is rather a dubious one, but there are living witnesses to attest the fact. This honourable transaction took place in the year 1809, a year particularly bad for the baker, as very little sound wheat of British growth could be procured, and they had to resort to foreign, to enable them to take the bread out of the oven, and amongst those who wished for a supply of this article were the bakers of a certain royal burgh on the south side of the Forth, not a hundred miles from Edinburgh. For this purpose they applied to a corn-merchant, who was a weekly visitor to the place; he had a sample which was fair enough; but when the stock came, and was baken into bread, it had such an intolerable smell, that it nearly turned the man, who drew the first batch, out of the bake-house. The taste of it was nothing better, in fact people would not buy it, and the whole became a dead stock upon the baker's hands; at least, it took three quarters and more of fresh country wheat to overcome the taste and smell of one bushel of this precious stuff.

It is probable that the corn-merchant thought himself an honest man, although he sold bad wheat, that had never been out of Britain, as the best Dantzic; and it may be asked, how did the bakers like their purchase, and why did they not return it when it was discovered to be so horridly bad? The fact of the matter is, that the wheat passed for Dantzic for some years, and as the bakers were not wise enough to keep the sample till the stock arrived, no comparison could be made; and the worthy gentleman declared upon honour, that the stock and sample were one and the same grain; so the short and long of the matter was, they had to pay the cash, and make the best of a bad bargain that they could; bad indeed it was, for some of this stock, which was not remarkably great, lasted upwards of three years.

I do not introduce this anecdote to depreciate the character of the corn-merchant, by no means; I only call the transaction a trick of trade, allowed perhaps in a commercial nation, and justifiable on the same principle, that all stratagems are held to be fair in the art of war; but I would advise the purchaser of grain, whoever he may be, to keep the sample in his possession until the stock be delivered,—there is sometimes a little difference. I do not affirm that all corn-merchants act in such a manner; but those who are not acquainted with foreign grain, should be cautious of purchasing it, especially when it bears a higher price in the market than the British, it may happen that the stock is not so good as the sample. Indeed, when there are such chances of deception, I would hold it as a piece of wisdom to purchase no foreign grain by sample, and perhaps it would be as wisely done, were our bakers to be content with our own produce, when it can be procured in a sound condition,—the preconceived opinion of many is, that foreign wheat is the best; but if they will give proper attention to their business, and not place it under the management of children, they will find that, in most instances, a proper mixture of British wheat is the better article.

It was stated before, that those species of wheat which are cultivated in Great Britain, cannot in general be termed the best in the world; but I am happy to inform my countrymen and agricultural friends, that perhaps the time is not far distant, when the best that the world can produce, is fated to become naturalized to the soil of Britain. For this national blessing, as I would call it, we are indebted to a foreigner, who has spent both time and money upon the purchase of the different species of wheat, barley, and oats, from every kingdom of Europe, as well as other quarters of the globe; and it would certainly be a piece of folly, not to call it ingratitude, to suffer this man to live unpatronized by the British public, and his valuable gift of corn to perish, or to pass away to another land. Perhaps I will not need to apologise for the insertion of the following letter, with which I was favoured lately from Mr A. the head gardener of the botanic gardens in Chelsea:—

"Botanic Garden, Chelsea,
22d August 1827.

"Dear Sir,

"Your letter of the 13th inst. was received in course; but we waited returning an answer, until we had seen those varieties of wheat that is growing in Hampstead. To your inquiries, Mr Marinus Lasasca did not intend to replant any of his corn this season until we alarmed him as to the perishing state of those already planted, and we got him to sow 350 of the best varieties on the last week of February, and the first week of March; 332 of these grew, the others did not, being rotten in the ground, this made him sow 400 varieties more at a friend's at Hampstead, and the remainder at his own house at Camden Town, making in all 52 distinct species of wheat, containing 992 varieties. Of the first 332 species, 310 are already ripened, and safely housed, 18 are nearly ripe, but the others are not likely to flower this season, so we will put them into pots, and try to save them through the winter. From what we have seen of those species that has come forward, we can safely affirm, that about 60 of them (the varieties,) are much more productive than any we have as yet seen in the country, and have no doubt, but that the whole may be cultivated with advantage in some part or other of this country; we began our harvest on the 23d of July.

Mr Lasasca does not intend to part with any of his grain until he publishes their history, which he intends doing the beginning of January.

We should have told you that some of those at Hampstead are ripe, although they were only sown about the middle of April last, these are not so fine as the others, owing to the dryness of the summer, and the shaded situation in which they grew; but there are many fine fertile kinds amongst them, and we will renew the most of them next season.

As there is little appearance of poor bigotted Spain calling home her persecuted patriots, it is very likely that both the patriot and his corn will become the inhabitants of this country. He has been forty years in collecting them, and while in Madrid, for that purpose, they cost him upwards of L.15,000, and is now his principal property, so we hope that these statements will satisfy your inquiry,—and am, &c.

"W. A."

P.S.—It is much to be regretted, that no agriculturist, or agricultural society, has as yet offered to patronize this worthy man, the value of what he possesses in corn cannot be calculated in a country like this. He has corn from every kingdom of Europe,—from Barbary, Egypt, Palestine, Syria, Turkey, Georgia, Astracan, Circassia, Tartary, Greece, &c. We should have also informed you, that besides the numerous species of wheat, he has at the same time about seventy varieties of oats, and thirty of barley, many of which are far more productive than any at present cultivated in Britain."

Such is the information that I received from Mr A., and I certainly join issue with him, in saying that the value of such a gift to Great Britain is not to be calculated; and also express my surprise that he has not as yet been patronized, either by individuals, or by collective bodies. Had he come a wandering vagabond, with half-a-dozen of dancing-dogs, or skipping like a monkey upon a rope himself, he would have long before this time have become the wonder of this truly wonderful nation, and have had his name recorded with admiration in every daily, weekly, and monthly publication in the land. But he came not in such a form, he came, not to pick the pockets of the public, by the exhibition of feats that bring men to a level with the brute creation, nor did he exhibit animals more tractable, and more sagacious than himself, but he came to bestow a blessing upon Britain; and the inhabitants thereof neglects him. Shame! Well might the Italian, after making a fortune in this country by his singing, retire to his native land, and build a stately mansion for his future residence, and write upon the principal gate, "English Folly;" for in such transactions Britons are fools, they can throw away their money to support and enrich a set of wandering vagrants, who have no claim upon their generosity but what arises from the exhibition of useless accomplishments, or on their knowledge of what can be of no service to mankind; while he who has devoted his time, his talents, and his money, to the actual benefit of his species, is allowed to remain neglected, despised, and unremunerated for the good he has done. Perhaps in a few years after this, when this worthy Spaniard has made himself conspicuous by the value of his services, and when he does not stand in need of any assistance, my countrymen may be ready to come forward, and boast of that protection and that patronage that he never received, and likely in gratitude for what he has done, build a monument to his memory when his mortal part is consigned to its kindred dust.

Is it said, in excuse for this neglect, that he is a foreigner; then, why patronize an Italian singer, is he not also one? Yes; he is. But the patriot knows not that distinction, he beholds, in every man who devotes his services to the welfare of his species, a friend and a brother;

no matter in what part of the globe he first drew the breath of life.

Have I said too much, perhaps it may be so; but virtue is confined neither to age nor clime, and a good deed deserves, at least, to be recorded. Whether or not, the introduction of new grain amongst us will be considered as an action worthy to be remembered by the present generation. I cannot say, but this I am certain of, that after ages will do justice to the memory of this meritorious individual, who, at such an expense of time and money, attempted to do so. The value of the gift may be little thought of, we are apt to prize the glitter before the gold, and to look upon those actions with complacency, that recommend themselves to our attention by their external appearance alone, without considering whether they are of utility or not; nay, is it not notorious that the admiration of mankind is uniformly directed to the praise of those actions that have for their object, the destruction of the human race; how is the conqueror hailed with joy, when he returns in triumph, leaving ten thousand of his fellow-men dread sacrifices to the sanguinary demon of war; how is his brow adorned with the roseat wreath of triumph, and he is almost worshipped as a god, even by the widow and the fatherless, whose natural protectors are left to fatten the soil of a foreign land. War and its attendant evils are celebrated by the historian,—the path of blood leads on to fame and fortune, while the arts of peace, when practised, too often leads the votaries thereof to ruin. A hero,—he is an imposing character, for the world has united to give him honour; but who, amongst the sons of men, deserves the appellation? Abraham, when he went to rescue his ungrateful nephew Lot, was a hero. Curtius, when he lept into the devouring gulph to save his country, was a hero. Cinicinatius, when he left the plough, led on the armies of his country to victory and to conquest, and in a fortnight was at his plough again, this man was a hero; to these illustrious names we may add our own immortal countryman Sir William Wallace, and one of more modern date,—Washington. These men were heroes in every sense of the word; but the records of history, from the creation of the world to the present day, can give us few besides; many indeed have laid claim to the title, but their pretensions rested only on the glory acquired by the numbers left upon the field of battle, and not from what constitutes the true glory of the warrior,—humanity. Yet the deeds of the soldier are admired; be it so, I have no wish to detract from the merit of those who have laid the world in ruins, perhaps some traces of humanity may yet be found in their composition, even Alexander himself could weep, when he had no more worlds to subdue. But still, in spite of all the glory that triumph throws over the brow of the successful warrior, that man who causes a single blade of grass to grow, where no vegetation was before, has done more than Macedonia's madman ever performed.

BOOK VI.

CHAPTER I.

The Miller's art considered frivolous—The Miller a useful character—A curious circumstance—Machinery for Grinding Corn—Water most proper moving power—Sea-mills, their advantage—Steam Mills very expensive—Cleaning of Wheat—Observations on Millers and Mills—Dressing of Flour—Improvement on Millstones—Cooling of Flour, &c.

If this Spaniard, whose name is mentioned in the preceding Book, succeed in his enterprise, according to all accounts, we will soon be in possession of wheat, better and of a finer quality than any we have at present. But after all, on the supposition that the baker gets the finest wheat in the world, it remains with the miller whether he shall have good bread or not, a very little inattention on his part will spoil the best wheat that ever can be produced. The miller's art is by many considered a very frivolous one, and that any fool is capable of being taught it to perfection; this however is a great mistake. It is not, properly speaking, a mechanical art, consequently a simple one, whose finer operations are conducted by the aid of nicely constructed tools, but to the eye, the ear, and the touch, does the miller depend,—these alone are his guides in the making of good flour, and this knowledge is not easily acquired.

The miller is a useful character, so useful indeed, that the world can hardly do without him; but at the same time the world also declares that he is a tricky gentleman; probably, however, the one-half of the evil deeds which it is said the miller commits is only in the imagination of those people who propagate the reports. True, he has much in his power, but then the grain that he puts through his hands is so diversified in quality, that to get an equal return from each is actually impossible, and some allowance should be made in his favour for at least a few mistakes. When it is said that some millers are rogues, is it not possible that the blame may be attached to those who are not guilty? Is it not possible for those who may have the charge of a mill, and the property therein, to be as dishonest as the operative miller can really be? Perhaps examples of this might be easily adduced. It is not many years ago since a certain corporation of bakers in the west of Scotland discovered something of such transaction in their mills, that is, the millers, or some of their *friends*, purchased a deal of bad grain on their own account, and abstracted occasionally some of the bakers' good grain, and put this bad thing in its stead. This was a good way to make a little money, but how the matter was discovered, or what satisfaction was demanded, I never could learn.

I recollect of a curious circumstance nearly allied to that related above, with this difference, that the stuff was taken away altogether, the good grain not replaced with bad, as in the former case. The gristers of the mill where this happened had for a considerable time been complaining that the return of flour did not correspond with the weight and quality of the wheat; however, as it was merely a private grumble, little attention was paid to it, so matters continued as they were, or rather they got worse. At last, however, the deficiency in some grists was so glaring, that the matter could not be passed over, and one baker whose loss had been repeatedly great, applied for and procured a warrant to search the miller's premises. A whole batch of the ministers of justice were dispatched to the village where the mills were situated, and every hamlet, crook, and corner, was searched in vain, nothing of a suspicious appearance was discovered, and the police officers were just on the eve of departure, when one of them recollected, that for all the places they had been in, they had never paid a visit to the clerk's habitation. It was answered to this, that the clerk was strictly an honest man, and that it was a high affront even to suppose that he would be guilty of such an action. It was granted that the clerk was reputedly honest, but that it would only be an act of justice to make every one in the place alike, and as they had visited every one but him alone, they (the officers) were determined to go there too, and if he was actually as honest as he was reported to be, his character would suffer nothing by the search. Accordingly the searchers went there also, and the first thing that catched their attention in the honest man's house, was a large corn-chest, this they immediately opened, and lo! there was presented to their astonished eyes, the very thing they were in search of—the baker's flour in the state of rough meal—not a small lot of it, for it was as much, nay, rather more, than what the honest clerk could manage to carry from the place where it was concealed, to the police office.

Many such facts could be adduced, but it is only a waste of time to repeat them; the millers, however, in these cases, were not the guilty party, although they at the first were blamed; but still the honesty of their disposition being so often questioned, it becomes them to act in a very circumspect manner, and at the same time the public should not be too hasty in their decision.

It will readily be granted, that the first mill ever used was a case of human teeth, and how admirably are these fitted for the purpose intended! What artist could have in-invented such another machine, taking up so little space, and capable of doing so much work in so great perfection!

The first rude attempt of man to reduce grain into meal was clumsy enough, the invention being nothing else than the using of two stones, betwixt which the grain was bruised by two persons, the one sitting opposite to the other. The first improvement upon this invention was the fixing one of the stones to the ground, incasing it with wood, and putting a handle through the centre of the other stone, whereby it was turned rapidly round by one or more people.

At what time machinery, properly so called, was applied unto mills, for the purpose of grinding corn, I never could learn, the invention is an ancient one, I mean as to the grinding process; that of bolting is but of recent discovery. The moving power must be animal strength, wind, water, or steam, by all these are mills driven at the present day; the invention of water-mills is ascribed to Belisarius, when he was besieged at Rome by the Goths. These mills were built upon the Tiber, that is, upon the water itself, being floated in such a manner that the passing current constantly kept the wheel in motion. In Venice there were a number of water-mills, so curiously constructed, as to be regulated by the tide, the water-wheel changing its motion every six hours.

The moving power first applied to the machinery of a mill was undoubtedly that of water; the invention of wind-mills seems to have been a later invention. But, some centuries ago, they were so common in Germany and France, that the clergy thought proper to demand a tribute from them; so that, if the British Government has taxed the light of day, the Popish clergy, no less assiduous in looking after their own interest, actually laid a tax upon the air.

I reckon that man to be one of the greatest benefactors of the human race who first applied wind or water as the moving power of mills, but who he was, none can tell, his name is lost to that world which he has so much benefitted. Belisarius invented water-mills, it is said, but water had been used as a moving power long before his time, and he was not the inventor of the water-mill, properly so called, but of the floating-mill, that is, mills placed upon the water that rose and fell with the stream, and was driven by the current without the aid of a fall.

Water, without all question, is the most proper moving power, when a proper situation can be procured. If not the most economical, it is allowed to be the most steady. It must be observed, however, that the main weight of water depends upon the atmosphere,—an excess of heat or cold lessens the weight of it.

From the inequalities of the surface of Britain, especially Scotland, there are few counties, indeed I may say there is almost none, where proper situations cannot be procured for mills where a fall is sought; even in a level country, through which a heavy body of water flows, mills might be erected to great advantage, as in the instance of those upon the Tiber. In the example of Venice, we see the possibility of erecting mills to be driven by the flux and reflux of the tide. Indeed, we need not go so far as Venice for the example of a sea-mill, we will find at least one in Britain, namely, in Musselburgh, in Scotland.

Sea-mills present one advantage above those driven by a fall or a level stream, in so far as there is no probability of the mill ever being stopt by a frost. But in a country distant from the coast, and where only a partial fall can be got, or a small level stream insufficient for the purpose, wind might be very beneficially employed as a moving power. In fact, wind has been extensively used for the purpose of grinding corn in many countries of Europe. In England there are a great many wind corn-mills, but in Scotland I do not think that there is one. One here and there attached to a farm-stead may be found for the purpose of thrashing grain, but none for grinding it.

This seems something remarkable in a country like Scotland, presenting so many fine situations for such mills. The truth is, the Scots seem to be enamoured with the steam-engine, and there is no doubt but that they have reason to be proud of it. But I, for my own part, would consider it consummate folly to incur unnecessary expense merely to gratify a piece of national vanity. I am far from depreciating the invention of the steam-engine, it is truly a noble one, and when applied to the purposes of navigation is really beneficial. But then this does not say that every mill of whatever description should be driven by this agent, when other moving powers can be procured. Water may not always be at command, the stream may dry up, or a severe frost may have the same effect,—even then the wind lends its aid. Is it not possible to construct a mill upon such principles as that it might be driven both by wind and water, to use the one agent when the other fails; it rarely happens that these two fail both together for any length of time. When wind is the moving power, the flour from a given quantity of wheat will be less than when water is employed, but the flour will be of a superior quality.

Water, however, is more plentiful in Britain than many are aware of, if it was judicially collected and applied; even a coal mine might give an inexhaustible supply for the driving of mills, were care taken to conduct it through a proper lead. Where all these fail, of course steam is the next resource, but I apprehend that a wind-mill could be erected at very little more expense at the first, than what will be required for the keep of a steam one a twelve-month.

Steam-mills, whatever may be the work performed by them, are very expensive to keep up, and, in my opinion, when employed for making flour, it does not perform the work so well as either wind or water. I have put a good quantity of steam-wrought flour through my hands, and it was not by far so good as that which was wrought by wind or water, but perhaps this was owing to the stones at the time being new. I have learned by experience that new stones does not make good baking flour for a considerable time, whatever may be the moving power.

But whatever may be the moving power employed, good flour depends much upon steady working machinery, which should be attached as little as possible to the walls of the building. Some mills, when working well, shake from top to bottom; such mills will never make good work, the flour indeed may be good enough in quality, but the baker may reckon upon an enormous quantity of waste.

The business of a miller is reckoned a very simple one, so much so, that any blockhead is considered fit for a miller. But this is a false conclusion, great attention and much practical knowledge is required to make a miller complete in his business. Any person, indeed, may put grain into the hopper, and take the meal away from the mill-eye, but this is a manual operation easily accomplished, and which any fool may do. But when a miller is grinding wheat and dressing flour, his eye and his ear must be constantly employed, although his hands may be occasionally idle.

There are many spoiled grists comes out of the miller's hands. I do not consider this always intentionally done, as many are apt to suppose. The baker has often himself to blame. But as it often happens that flour is spoiled, it signifies little whether it is done by carelessness or not; carelessness, in effect, is as bad as the intention to do evil.

The first operation which wheat undergoes in the flour-mill is the cleansing one; the instrument for that purpose is termed a cylinder, which throws out every particle of dust, chaff, or light grain, that has escaped the operation of the fanners. The cylinder, however, does not throw out ball or paple, as these, if they pass through the fanners, are in general as heavy as the proper grain, but the light pickles of wheat, wild mustard, &c. are thrown out. The baker, when he buys wheat, should reject that in which there is much light, for, although it may fill the farmer's measure, it will not fill the baker's flour-sack. This may be deemed a useless advice to some; I have, however, seen many experienced bakers very ignorant of this, and blame the miller for a false return when he only had his own stupidity or the farmer's roguery to blame.

The cleaning of wheat in the mill, although of vast importance to the baker and the eater, requires but little attention on the miller's part, it is in the grinding of it where his abilities are put to the test. Much depends upon feeding the mill properly, either with dry or damp grain, as there is great danger in the neglect of it. If the mill is fed too fast with damp grain, the stones get clogged, and will never make sufficient work. On the other hand, if fed too slowly with dry grain, the bran is cut too small, the flour made swarthy, and perhaps rendered unfit for baking, the vegetative life of it being destroyed. But, independent of this, if the stones are suffered to come into collusion with one another, the rapidity of their motion is very apt to set the mill on fire; it therefore becomes a matter of the utmost necessity not to allow the mill to run dry at any time.

Good flour in a great degree depends upon the regular motion of the upper mill-stone, its revolutions in a minute, to make the best work, should be 120, as nearly as possible. When the velocity is much greater, the bran is cut too small, by which means the flour is swarthy; or, if the velocity be much less, the flour will not only be dull in colour, but unfit for baking for a considerable time, and there will also be an excess of bran These cases happen respectively when the mill is either over or under-fed; and if water is the moving power, should the great wheel be dragged amongst it, the same effects will follow, as if the mill had either been over or under-fed. It is then of indispensible necessity that the water-wheel should always be kept clear, or when, as it will sometimes happen that there will be tail-water from the flowing of the tide into the mill-lead, in some situations the mill should be stopt directly. Tail-water not only spoils the flour, but overstrains the machinery in such a manner, that no steady work can be performed by it, and it is very apt to be broken.

Many millers value themselves upon their skill in picking a stone, and it must be confessed that there are some of whom it may be said, that they cannot do it at all, if we are to judge by the baking qualities of the flour which they put through their hands. If a stone is picked too sharp, or suffered to run flat, the flour will be equally spoiled, with this difference, that the sharp ground flour will be swarthy, but will improve and recover from its deadened state by keeping; whereas the flat ground flour will be dull in the colour, however finely dressed, and always remain soft, whatever may be its age.

Mill-stones are a very expensive article; but they, like other articles, in time will wear out; it may, however, be proper when the running stone has become too light by frequent picking, instead of getting a new one, to add some heavy material to the old one. A light running stone will never make good work, it may bruise the corn, but the flour will never part properly from the bran.

He is a very clever miller, or a very fortunate one, who never put a spoiled grist out of the best of mills. At the same time, the miller is often blamed for what he has no concern. Wheat ground, dressed, and baked in the course of twenty-four hours, cannot be expected to bake well; indeed, it should, at the least, stand three or four days before it is used, or an allowance made in the miller's favour.

What I have said above upon this subject is not intended as a direction to the miller. I am not a miller by profession, and although I can tell in a moment whether the mill is going right or not, I am not capable of rectifying an error. I can point out where it lies, and that is all a baker needs to care for understanding, and it is only for their instruction that I have written. What follows, however, I intend as instruction both to millers and bakers, but to bakers principally.

To the bakers, my first advice would be, never to grind damp wheat, unless for immediate use,—the wheat will keep a considerable time with good treatment, but when ground, it will heat in the flour in the course of a week or two.

In the next place, with regard to mixtures, especially of damp and dry grain, let all be thoroughly mixed before it is sent to the mill. It is true, the miller can easily do this when putting it through the cylinder, but the generality of them are very careless about the matter. When dry wheat first comes through, then raw, and so on, the stones get clogged with the raw grain, and passes over the dry with bruising it;—good flour in this case cannot be expected.

Next, let the baker keep on his own premises weights sufficient to weigh a sack of flour, and although every grist may not be weighed, still, the knowledge that it can be done, will operate as a sufficient check. The want of a pound or two, or even a peck of flour from a grist, is nothing; but two stone from every sack, is rather too great a matter for the miller to take, besides his cash payment.

Again, where the baker finds that any of the neighbouring bakers give the miller a weekly fee, let him go to another mill, if he can, to get his wheat ground. Millers are like other great men, they have their favourites, and it is very likely they will be served first; at all events, there is a possibility of good flour being changed for bad. I do not censure the custom of giving occasionally the miller a glass of spirits or a pot of beer, but I cannot think it proper to bestow a weekly tribute,—the honest man does not need such to keep him honest, and the rogue is unworthy of it.

I may now take the liberty of finding fault with one part of the miller's work, his practice I mean. It is the common custom of the millers in Britain, as soon as ever the rough meal comes through the mill-eye, to thrust it into sacks. The consequence of this procedure is, that the heat generated in the process of grinding, by being confined, produces a species of rapid fermentation in the flour, which soon spoils it. If it does not sour, which it will soon do in warm weather, there is a dampness comes upon the rough meal, which will never leave it as long as it is in flour. Neither will it part with the bran properly, and what fine flour there is, is dull in the colour. I have known by this treatment the first four or five sacks out of a ten-quarter grist, come out of the dressing machine as dull in the colour as second flour, and even the remainder very inferior to what would have been expected from the quality of the wheat.

The miller was blamed for this, and certainly he was guilty, for he was expressly ordered, and he had time allowed him, to act otherwise. However, to do justice to all parties (miller and baker) the rough meal should be spread thinly out upon a deal floor, and suffered to remain there until it is completely cold, which will soon be effected if a current of air is suffered to pass through it. This is the practice in America, and it is well known that the American flour is proverbially good, not indeed from the superior quality of the wheat, which many suppose, but from its treatment in grinding and dressing.

This practice will not give any additional trouble to the miller, the rough meal is carried aloft by the aid of machinery attached to the water-wheel. Could such things not be done in the mills of Britain?

The practice of the millers in Scotland and England are different with regard to dressing flour. The Scots millers, after grinding, immediately dress the flour, taking seconds, thirds, and bran out at once. English millers, on the other hand, (at least those of them that supply the London market), first grind, then dress for the fine flour, the refuse is ground the second time, and dressed for the seconds, the refuse is ground the third time, and the produce in dressing, or thirds, pollards, and bran. By this process there is less fine flour obtained, but the seconds are of a superior quality, many sacks of which I have seen very little inferior to some of the standard flour in some country places in Scotland. This plan I think should he adopted on the North as well as the South side of the Tweed, and although there might be less fine flour, there would eventually be less actual refuse. As for the American plan, it should be made imperative upon the millers to practise it. Methinks the fear of innovation need not stand as a bar against improvement in this matter, and I am sure that every sensible person will own that a good example is always worth the imitation, although it should be brought from the other side of the Atlantic.

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* In Baltimore there is a flour-mill of eight pairs of stones, that grinds and dresses 125 quarters daily. The moving power is steam, and every operation is performed by machinery. A particular account of this mill will be found in the second volume of L. M. M.

The common allowance for waste is eight pounds to a quarter of clean wheat, but when the wheat is dirty there will be more. I have even known two stone a quarter, but this was a peculiar circumstance which I may have occasion to mention in a future part of this work. At the same time it must be acknowledged, that the millers are in general very fond of giving a great return of waste.

But granting that the miller does not always do his duty, they are only men, and may err; but still I believe they are sometimes blamed innocently for other people's faults, an instance of which I shall give here.

From some cause or other, a baker in a small country town did not employ the mill nearest to him to grind his wheat, but sent it to another nearly eight miles distant. In a short time he began to suspect that his sacks were not so full as they should be, and on weighing them, this was found to be the case, every one being deficient less or more, even some was short a stone. This was too much for the baker to lose, and he made an immediate complaint to the miller. The complaint, and the answer returned, was not repeated by the messenger exactly as he received them, and of course this made matters worse. Rather threatening notices had been given to each party, when the baker discovered accidentally, that the person he had employed to take his stuff to and from the mill, had thought proper to engage a few regular customers of his own upon the way, which he supplied with flour, and very honestly kept the money to himself.

I might, as I have said in the beginning of this Chapter, give more examples on both sides of the question, but I judge it needless, and would rather drop the subject altogether, and will merely observe, that wheat dressed directly after it is ground will not give the same produce of flour, nor yet of so good a quality, as if it had been in bran for eight days. Indeed it is almost impossible to get two grists alike, even on the supposition that it is the same grain, and ground with the same stones, and when different pairs of stones are employed, the difference of course will be the greater.

The most experienced millers now pick their stones in a different manner than formerly, instead of groving both stones in a contrary direction, the surface of each is now made into the form of corduroy, and this, by the millers, is called cordan; this plan makes better flour.

CHAPTER III.

Of Ovens,—their structure, and the different modes of heating.

Although an oven is indispensable to a baker, and a good one nearly as easily procured as one that is bad, it seems something strange that so many bad ones are built. It is an undoubted fact, however, that there are many built insufficient for the purpose of baking bread in a perfect manner, notwithstanding the expense laid out upon them. The same money required to build a bad oven will also build a good one; the error is not in the materials used, but in the manner of building the oven.

Before pointing out what these errors are, it may not be improper in the first place to say a few words relative to the different ways of heating.

The first article extensively used for this purpose was wood, and in those days it was troublesome work indeed to be a baker; but as it has now become a dear article, it is in general laid aside. Some country bakers indeed still use the wood, and in London some use it still, in the shape of saw-dust, and tanners' waste; but, in general, coals are now the article that is mostly used, as they are more convenient and better adapted to a press of work. When hard wood, such as oak or beach can be procured at a reasonable price, I would prefer it as a cleaner article than coals; but would object to fir, as it is apt to give the bread a rasinous taste, especially if the oven happen to be cold.

There are, properly speaking, four different ways of heating an oven with coal, namely, with the chaffer, the pipe, the brander, and the furnace, which may be simplified into the pipe and furnace. Which of these modes are the best, I own that I am unable to determine; there are advocates for each way, each baker of his own choice generally preferring that to which he has been mostly used. On this principle, I would rather prefer the furnace as the cleanest way of using such a dirty article as coal. But this every baker should determine for himself, and not be guided always by others opinions.

The chaffer first superseded the use of wood, and was in fact adapted for those ovens which originally had been built to heat with wood. It was a wrought-iron grate, ribbed all round, as well as in the bottom, placed on one side, generally the right hand side of the oven. An hour or two before bed time, a fire was kindled in this chaffer within, upon the oven sole, on the opposite side. When these two fires were properly broke through, as many coals were added as was deemed sufficient to heat the oven properly for the following day's work. Upon the morrow, the first thing done was to draw the cinders from the one side of the oven, and the chaffer from the other, and more fresh coals put on. It was then allowed to stand until the first bread was ready to be put in, the chaffer was then returned to its original situation, and the oven cleaned out. This manner of heating an oven was far from being a good one, it consumed a great quantity of coal almost needlessly, and it seldom happened but that the oven was too hot for the rolls in the morning, which is a kind of bread that requires a hot oven. It was necessary, however, to give the oven a strong heat, that it might be capable of doing the whole day's work, as, in the event of being too cold, there was no re-heating it, but at an additional expense both of time and coal.

The pipe is a later invention, and is merely an improvement upon the chaffer, but it is a very great improvement. The pipe chaffer is composed of two separate boxes of cast-mettle, the one placed upon the top of the other. The under box is open at the top for both breadth and length, and a square or circular hole at the one end of it. Upon this under box the upper one is placed, grated on every side, the bottom of it joins into the under box, but gradually widens towards the top; into the bottom of this upper box a cast-metal grate is made exactly to fit, upon this grate the coals are put. When the chaffer is filled, an iron pipe is inserted into the hole in the under box, and secured by an iron clasp on each side, then what is termed a blower is put on. This is a false door, made of plate-iron, in the centre of the bottom of which is cut a hole, for the pipe to pass freely through. This door is made exactly to fit the oven mouth, on the outside of the vent, and the space, if any, betwixt the blower and the pipe, is filled up with old rags, to prevent the admission of air in any way but by the blower.

The use of the pipe is certainly far superior to that of the chaffer, as an oven may be hot in the course of an hour or two with it, whereas the chaffer alone requires seven or eight, and all the work had to be properly timed; that bread which required a hot oven must always have been baken first, whatever might be the demand for other kinds.

The brander comes next to be considered, which is upon a different principle; true, the coals are put into the inside of the oven as well as in the pipe and chaffer, but the manner of working is different. On building an oven intended for a brander, a vacant space is left in the wall as an ash-pit, up to the level of the sole, generally on the left side of the oven, but this is regulated by circumstances. After the sole is laid, an iron grate is thrown over the ash-pit, level with the sole, and the side walls raised all round, leaving a space large enough above the grate as will hold coals enough for heating the oven; opposite to this grate, and level with the top of the open space is the vent of the oven. In some ovens of this description the vent is rather nearer to the mouth, and I think it is the best way to have them so. To the vent there is a damper, or what some people call a register, attached, and another below the grate, where the coals are to be put; when the oven is heating, the door is shut, and both dampers are drawn out, and both are shut in after it is hot, or at least, when the bread is set.

I cannot say that I approve of this way of heating an oven. The one on which I wrought never failed to be excessively hot right over the centre of the oven, while the farther side of the head always remained cold, so that for our batch we had always to give an extra heat at the head with shavings, and put iron plates below the bread opposite the brander; and even with this contrivance it was difficult to make good work.

Hence the necessity of some alteration, and the furnace was very properly substituted in the place of the brander. The principle of both, however, are the same, they are built upon the same construction, and the dampers are one and the same in number, but the coals are thrown into the furnace on the outside of the oven, whereas, on the brander, they are put into the inside of the oven. The furnace is also more convenient in every other respect, but they require a deal of art to place them right to heat properly.

The chaffer is now out of use, I never saw any but one, and only two branders, in all my peregrinations. But whatever may be the mode of heating, there are often great errors committed in the building of ovens. Some of these errors I mean to point out; taking it for granted that either a pipe or furnace is intended to be built, at least my observations will be made upon these two modes of heating alone.

The building of an oven is what very few bakers pay any attention to, as judging it not to be within their jurisdiction. Of this, however, they are certainly much mistaken, but the truth is, very few have ever the opportunity of building one for themselves. There are a few indeed who may chance to do so, but these few, instead of superintending and giving directions to the work, generally leave the whole matter to the mason. The builder may be an expert workman in his own profession, but the baker who trusts to this completely, will, in the long-run, find himself in the wrong. I own, indeed, that it is a disagreeable task to superintend and give directions to other tradesmen in their own profession, it is in appearance taking too much assurance upon one's self; but then it cannot be expected that a builder can understand the effect that different modes of heating has upon an oven of the same construction. If he does, it says little indeed for the baker's knowledge of his own profession. I never saw a builder yet who could give me the least explanation; in fact, unless by theory, they knew nothing about the matter. There are few places of note but where there resides one or two persons famed for their skill in building ovens. These people are in general clever men as masons, and put excellent work through their hands; but the mischief is, every one of them has a system of his own to which he uniformly adheres, without the least variation, whatever may be the mode of heating. On being employed, the only question which they ask is, whether the oven is to be heated with pipe or furnace; on receiving their answer, they commence their operations, and work by their own rule, unless there is an express bargain to the contrary. According to the mason's own way of working, he will of course finish a perfect work, simply considered, as a piece of masonry, but on trial by the baker, it is found to be very inadequate for the purpose intended,—the baking of bread.

In building an oven, the first consideration should be given to the situation in which it is to be placed, whether there is a good draught or not. When there is draught at command, my advice would be to build a furnace oven, if not a pipe one. A furnace oven with little draught will always heat irregular, taking on the heat right over the centre, and round the flue, while the head remains cold, where the greatest heat should be. On the other hand, when a pipe-oven has so much draught, it will take on what is termed a flush heat, that is, the greater current of air consumes the coals too fast, by which means the heat does not get time to penetrate the stone deep enough to give a solid warmth, the surface only receives too much; this, however, if too much draught is in the pipe-oven, can be rectified by partially closing up the pipe; but, in the event of a furnace having too little, it must remain so, for their is no help for it. The effect of a flush heat upon an oven is to burn the bread on the outside before it is baken in the heart, and this should be guarded against as much as possible. When an oven is first constructed, perhaps the situation is favourable for a good draught, but it should be considered before a decision is come to, whether or not this draught is apt to be obstructed by any additional buildings that may be erected in the neighbourhood.

After having decided whether the oven is to be a pipe or a furnace one, the next consideration of moment is the sufficiency of the stones intended to be used. Sea, or what is termed leck or trap-stone, is the best, as it is in general free of those veins of marble that commonly intersects the land-ward stones. When sea-stone is taken, that should be preferred which has been for the most part been kept under water, or, if this cannot be procured, a foot or a foot-and-a-half of the outside should be cut off and thrown away; for any part of this sea-stone, if exposed to the air, when put into an oven, will soon crumble into dust, its nature is such that it must either be drowned or burned.

The foundation either is, or at least should be, laid with solid masonry, and as little mortar used as possible, and, when high enough, a bed of dead-sand some inches thick laid upon it to bed the sole in. The term dead-sand, which should rather be called pit-sand, is used to distinguish it from sea-sand, which will not answer. The sea-sand contracts in bulk with the heat, thereby causing a sinking in the sole, which the pit or dead-sand does not.

For the most part the sole stones are always left uncovered on the underside; this is to save time, but I think the practice a bad one. The stones must of course be of unequal thickness, and as much time is employed in laying them right on the sand, as there would be in dressing them altogether.

The sole of an oven should rise gradually from the mouth to the head, at the rate of one inch-and-a-half for six feet, or two inches for twelve, and on building the side walls, care should be taken that they should not rest upon it. The sole and side walls should be jointed as close as possible, but they must always be clear of each other, for if the side-wall is built upon the sole, it is very apt to throw those stones on which it rests out of their level. I have seen an oven sole thrown out of its level almost half-a-foot by the sinking of the side wall; there is no doubt but that this principally arose from insufficient workmanship at first. Allowances, however, may be made for the sinking of the wall a little, but half-a-foot is surely too much, and the best way to prevent the repetition of such blunders is to keep the sole and side-wall perfectly clear of each other.

The height of the wall, and the throwing of the arch is that part of the work where most errors are committed, inasmuch as some that are intended for a furnace has the wall and sole of a pipe-oven, and *vice versa.* The wall of a furnace-oven should at the least rise twenty inches above the level of the sole, and the arch thrown so that the key or centre stone of it may rise a full foot-and-a-half above the base. But for a pipe-oven, fourteen or fifteen inches is quite sufficient for the side-wall, and the arch should be thrown as level as possible.

There is no absolute necessity to keep to these rules with mathematical precision, but I wish to impress it upon the builders of ovens, and bakers particularly, that any great deviation from the dimensions given above, will be only creating additional expense for the article of coals. The above dimensions are for ovens of every size, it is immaterial whether it is to be six or twelve feet square, it makes little difference to the action of the heat upon it.

Any person who has seen an oven heating, will readily comprehend why the furnace should have a high arch, and the pipe a low one—heat naturally ascends; but in a furnace-oven it does not immediately do so, but branches off to the right and left of the flue, and making a circular sweep round, meets again on the opposite side, then rushes to the centre of the arch, where it is met by that small portion that ascends from the flue, and their reciprocal action throws them down upon the sole.

The arch of the oven would be the first to receive the heat, if it was not for the dense smoke that prevents the heat from immediately ascending; it is then forced to seek a passage for itself along the sole, which it does, displacing the cloud of smock in its progress, until it reaches the side-wall. As soon as the heat reaches the side-walls, it rushes up, and overspreads the whole surface of the oven, imparting heat to every part. The smoke being confined, if I may so speak, within it, these streams of fire gradually grow less in volume as the heat of the oven increases. The disappearance of smoke, however, in an oven, is not a true criterion of its being hot; this may arise from the want of fuel, but any one may observe, that when an oven is cold, the smoke always keeps the lower down; in fact, close to the sole, until it has received heat enough to displace it; when an oven is hot enough the putting on of fresh coals will undoubtedly increase the volume of smoke, but if the oven door is opened, and the dampers shut in, the smoke will descend no lower than the top of the oven mouth, but if it is cold it will descend nearly to the sole.

The heating of a pipe-oven is exactly the reverse of the furnace; in the pipe there is no reveterating flames to intercept each other, but the draught being to and from the mouth, the flame is thrown all upon the top, and expands itself along the arch. If the arch happen to be a high one, which is common enough, that part will take in an excessive heat before the sole is touched with it. In short, if a pipe is used with a high arch, the bread will be burned on the top, while the sole of it will be boiled, but, with a low arch to a furnace, the case will be exactly the reverse.

When an oven is too hot on the sole, it may be reduced by cold water, but this is what should never be resorted to but in the utmost necessity. It is not so easily reducing a top heat, the best remedy is to give the oven an extra heat, and shut all close, and let it stand for some time. This, in most cases, will give a solid heat both in a pipe or furnace oven that heats irregularly, but at the same time it is with an additional expense, and is only a partial cure for an evil that should and would not have been there, had a proper knowledge been exercised at first.

Whether the pipe or the furnace is the best mode of heating, must be left to the baker, and the circumstances in which he is placed relative to situation, and so on. I, for my own part, as I have said before, prefer the furnace, but this preference perhaps may arise from prejudice. However, my opinion is, that when the pipe and chaffer is used, the chaffer should be of a circular form, and not square as they generally are. The circular ones will take up less room in the oven, and give out a greater proportion of heat than the square ones.

With regard to the furnace, the bars of the grate should be nearly upon a level with the sole, rather lower, but not exceeding an inch. Some self-taught bakers have the flue of their oven the whole breadth and width of the furnace; that is, the flame enters immediately from the furnace upon the oven sole; this should not be, the flue should be raised above half-a-foot from the sole, making the flame strike upon it at once, gives to that particular spot a strong heat, while the rest of the oven remains cold.

The next thing to be considered, is, in what part of the oven is the flue to be placed? In some it is placed in the centre, which arrangement I decidedly object to, it is the principle of the brander, which I have stated before. The place that I would recommend is this, measure the length of the oven, and divide it into three sections, at the end of the first, next the mouth, place the flue, about half-a-foot from the sole, and opposite, or rather nearer to the mouth, place the vent, but raised a few inches higher than the flue. The direction of the flue should be slenting, looking towards the head of the oven, and the vent the same, which may be less in circumference than the flue, but this is of little consequence, as the draught can be regulated by the dampers.

With regard to the repair of ovens, there is often a great error committed in clapping a new sole upon an old one, but this should never be done on any account. Such an oven will never bake bread properly at any time, and the expense of keeping it is always great. I once had the trial of such an oven myself for eighteen months, and the expense of coal for that period was above thirty pounds, with a baking of three quarters a-week; and after all, I never could make sufficient work.

The cause of this is obvious enough, if the oven has been built upon a proper construction at first, the putting on a new sole upon the old one must lessen the space within, and the heat which should dilute itself, instead of doing so, being pressed by the contracted current of air, passes rapidly from flue to vent. In the instance of a furnace, this is the cause, but whether such partial heatings takes place with a pipe, I cannot say. However, both with pipe and furnace, there are evils arising from a double soled oven, which no art of the baker can overcome, the only remedy is to pull the oven down and build a new one, or then take out the old sole altogether, and put a new one in its place.

It is written somewhere that "a double-minded man is unstable in all his ways;" the words are as applicable to a double-soled oven as if the observation had been made upon one. Sometimes the oven will have the appearance of being too cold, and instead of being so, will actually burn the bread. At other times, it will have the appearance of being too hot, and not hot enough to bake the bread. The appearance of a cold oven results from slow heating, the under-sole draws off the heat from it as fast as the upper one receives it, and when the bread is put in and the oven doors shut, the under sole throws back the heat again, by which means the bread is burned. On the other hand, the appearance of a hot oven is the result of quick heating, by which means a flush or false heat is given to the upper sole before the heat has time to penetrate to the under one. The baker, when he sees the sole of his oven too hot, naturally reduces it with cold water, and puts in his bread, but instead of getting it properly baken as he expected, it will only be boiled. The reason is this, the under sole always draws away the heat from the upper one, whether the oven is slow or hastily hot, and always throws this heat back after a certain period; but in an oven hastily heated the usual time for the bread being baken is expired before the withdrawn heat has time to return. Let no person ever put a new sole upon an old one, the difference of price betwixt a partial sole and one fully renewed cannot be much, and is not worth mentioning, in comparison of the evil a double sole does.

I have often thought the following plan would be a good one with regard to building ovens, where the first expense was reckoned no object. On laying the sole, the stones are bedded in sand, and if great care is not taken of the work, the sole is very apt to sink. I have seen some of them sink more than half-an-inch in a month's time. Now, to prevent this, I would propose, instead of bedding the stones upon sand, to get a cast-metal plate, say an inch, or an inch-and-a-half thick, exactly the length and breadth of the sole. When this is done, let every stone be dressed both on top and bottom, and jointed upon this mettle plate; this plan, if no other advantage results from it, will prevent that sinking in the sole which many bakers, and myself among the rest, have so much reason to complain of.

Another improvement which I would recommend, is to substitute dressed for undressed stones for the arch, if fire-brick was not deemed a superior article, and instead of the common mixture now in use, to use in its place a cement made from bullocks blood and hair-slocked lime. It is well known that the present way of throwing an arch is often attended with disagreeable consequences, the lime frequently falling down upon the bread while in the oven. But by adopting this cement, nothing like this could happen, as the arch would, with one month's heating, become as one compact and solid stone, and the stones or bricks would sooner fail themselves than the cement by which they are put together.

This cement may be easily made, and at very little expense, although it may take up a little more time than common mortar. Procure, in the first place, as much well burnt lime-shell (the whiter the better) as will be sufficient for the purpose; reduce that shell into a powder, and put it through a fine sieve. In the next place, procure some bullocks blood, newly drawn, mix as much of the lime-powder in the blood as will bring it to the consistence of a thin paste, then dip the dressed stones or bricks, one by one, in this paste, and lay them in their regular course, till the whole is finished. A very little of this cement must be made at a time, as it soon gets too stiff for working, perhaps it would be necessary to make it every twenty minutes.

This, my good friends, is an invention of my own, whatever may be thought of it, and I intend, some time or other, perhaps a hundred years after this, to take out a patent for the invention,—it is of as much consequence, in my opinion, as one for cleaning smutty wheat by washing it.

I may observe, as the conclusion of the matter, that the sole of a stone-oven should never be less than nine inches in thickness, as much above that as the baker pleases; indeed, it cannot be made too thick. For the side walls, they should be three feet at least in thickness all round; they may be thicker with all manner of safety, but on no account should they be less, or then the oven will not keep its heat properly; the whole building should, if possible, be kept under cover; perhaps it is not generally known, that if the walls are thin, a severe frost prevents the bread from drying properly in the oven.

Now I have done with this part of my subject. We have taken a short view of the different climates of the earth, and a few of the productions of each; next we treated of agricultural affairs; took notice of what we thought a few defects, and at the same time recommended what we thought were improvements. Our next subject was the different kinds of wheat, then follow a few observations about the miller and his work; and lastly, we took occasion to say a few words relative to the construction of ovens. I do not say that what I have written is perfect, that would be a presumptuous boast indeed; undoubtedly many defects that I could not detect myself will be discovered by others, but these defects are not intentional, and it is hoped that the candid reader will make allowance in the Author's favour, so far as justice will allow.

BOOK VII.

CHAPTER I.

The first Baker upon record—The progress of the art—Egypt—Macedonia—Rome—France—Britain—Fine Flour, what it is—Undersellers—Bankrupts—What a sack of Flour should produce.

Adam, we are assured, was the first gardener, and his eldest son the first farmer; but who was the first baker, history does not inform us. The art is undoubtedly an ancient one, but who he was that first contrived to make bread from the flour of grass-seeds remains a secret; his or her name, like that of many other great discoverers, is lost to the world. It is allowed, however, that that person who first made bread, has conferred a lasting benefit upon mankind,—and justly might the art be termed a Divine one.

From what I can learn from history, the Egyptians seem to have been the first people amongst whom the business was practised as a distinct profession. All the world (the Christian and Jewish part of it I mean) has heard of Pharaoh's baker, the first that is mentioned in history, either sacred or profane; and indeed it does not appear that his last days in this world has added any honour to the profession. He was hanged; but then what was his crime? It is not recorded against him, although it should have been, if for no other reason than the clearing of his Majesty's character; likely, however, the crime was of such a trifling nature, that the official authorities thought shame to record it. Perhaps the poor baker had got himself tipsy with the butler over night, as these two seem to have been guilty of the same misdemeanour; and a consequence of this would be, that the baker would not have new bread ready for his Majesty's breakfast; a lesser crime than this was enough to bring a man to the gallows in a despotic court. But if both butler and baker were guilty of the same crime, why not hang them both? Justice declares that their fate should have been the same; true, this may be granted, but then, the law—on what a delicate point oftentimes is the question of life and death poised, and perhaps the baker had not so many *good friends* as the butler,—it is not unlikely but the great people of those days were of the same disposition as the great ones of more modern times, that is, they prefer their wine to their bread. If such was the case, it is easily accounting why the one man was hanged, and the other spared; the butler had *friends*, and the baker had none, or probably there was no person equally qualified with the butler to arrange the ceremonial of his Majesty's birthday,—we allow at least that his services were necessary. But after all, is it certain that the person who was hanged by the command of Pharaoh was in reality a baker; true, we read it so in our own translation, but is the word properly rendered? Will any of our Hebrew scholars inform us whether or not that word which they translate baker, could not with more propriety be rendered *steward?*

But the settling of this point is now of little consequence; whatever the *exalted gentleman* was by profession, of this we are certain, that at an early period there were a number of bakers in Egypt, who perhaps knew as much of the art as the one-half of the bakers of the present day. From the Egyptians, it is natural to conclude that the Jews would learn the profession, which seems to have been in a forward state, as they had a complete knowledge of leaven, which was an after discovery.

It may seem to savour a little of vanity, to say, that the art of baking has followed the steps of civilization, at least, in a rude and barbarous state, no bakers were to be found. Grain was used as food by almost all nations from time immemorial, but it was either eaten perched, or the meal boiled into pap or pudding, and it was not until refinement took place that bread was ever used. Asia, for ages, contained the most polished nations, and there alone was the baking art carried to any perfection. True, indeed, it is, that Egypt was the first place where the art was practised, which is a nation in Africa, but from thence the Jews brought it into Asia, and the Greeks into Europe. At an early period the Grecian bakers were greatly celebrated for their knowledge in their art, and the good bread that they made; and nothing surprised the Roman armies so much as the bread which they found in Macedonia, on their conquest of that country. Rome had been in existence five hundred and eighty years, and during that long period no Roman had ever tasted bread, or ever knew that such an article was in existence, until they thought proper to invade Macedonia. On their return from conquest, by Imperial command, a number of Grecian bakers were carried with them to Rome, and settled as freemen in the Imperial city, and bread soon became the staff of life in that place, where no bread had been before. Before this period the Romans prepared their flour into food by boiling it, and the people for ages bore a name synonymous to that of this diet—pulmentarii, that is, eaters of pap; but after the introduction of bread, the appellation ceased to be used, and in a few years was entirely forgotten.

The Greeks, for a considerable period, were the only bakers in Rome; they were greatly respected, and invested with extensive privileges; of all artizans the bakers alone were freemen; the other arts, without exception, being practised by bondmen. Many of the bakers were of the Patrician order, and had their seat in the Senate, which statement, perhaps, will make some of our modern high-born senators blush to the very toes, at the meanness of the ancient Romans for admitting tradesmen, especially bakers, to have a seat and a voice in the highest council of the nation. The bakers, however, were expressly prohibited, by a particular law, from attending the disgusting spectacles of the Amphitheatre; the intention of which prohibition, was to keep them uncontaminated from the general vices of the age. Here the Romans acted wisely, and it would be well for Britain were many of our own ———, who are the ostensible patrons of virtue, laid under the same restriction, a good example might then become as common as a good advice.

In the time of Augustus, there were three hundred and twenty-nine common bake-houses in the city of Rome, to supply the inhabitants with bread; to these bakehouses were petty criminals sent (as a punishment) to assist the baker in grinding his wheat, dressing his flour, and other slavish parts of his work. Whether this was wisely done or not, I will not take it upon me to say, perhaps it savoured too much of severity in the administration of the law, in putting offenders to hard labour; be this as it may, I verily think that those people, who are always busying themselves in their neighbours affairs, should be employed, at least occasionally, in their own. Thieves, pick-pockets, &c. in one sense of the word, are an industrious class of people, and how far it is consistent with sound policy to place them in solitary confinement, without labour, is yet a matter of dispute; but, without question, such punishment is not consistent with morality. All punishment, while its primary object is to demand satisfaction for offences committed, should be inflicted in such a manner, as to lead to the reformation of the offenders; and it is rather a dubious point whether or not confinement in idleness is calculated to do so. I rather think that the Romans were right; and, were our places of confinement supplied with mills for grinding and dressing flour, there would be fewer robberies committed in the land.

From Rome, the art of baking gradually found its way into France, and from thence into Britain, where it was long practised as a domestic art,—the women of each family being bakers for the supply of their own households. At what time the art became a distinct profession in the island, we have no perfect account, but it must have been at an early period, for we find that the bakers of Coventry, in the time of Henry III. petitioned "for an "exemplification of certain ordinances of assize made in "the reign of King John, the purport of which had been "to grant the bakers a certain allowance to defray the "expense of baking, and the maintenance of their own "families."

But although the baking art has been a distinct profession in the island for a considerable period of time, many years passed over before it became universal, and even at the present day there are many considerable places in Britain where there is no regular baker. Indeed, there are many families who would think themselves ruined, if not poisoned, were they to purchase a single loaf from the baker's shop. Buying bread of a certain description of people is certainly unprofitable, and in many places where I have been it is really bad, and it is no wonder that people in such places resort to the practice of private baking; but such is not the case every where, and where there are regular bred bakers, who do not resort to the dishonest practice of underselling, private baking becomes an unprofitable speculation.

I am a baker by profession, and the subject may seem to be rather an interested one; yet I aver, and with truth too, that the regular baker's shop is the cheapest place where a family can be supplied with bread through the course of the year. As for those learned people who maintain that the baker's bread is poisoned, if they will take an unlearned person's advice, and drink water instead of wine, they would soon change their opinion; the greatest fault that a full-priced baker's bread has, is being too fine for people who have got nothing to do but to make a god of their belly. The medicinal qualities of fine wheaten bread is but little understood in this learned age of ours, and perhaps the medical profession will understand what I mean when I say, that no person who is not engaged in some laborious employment or other should ever eat much of it, unless he think proper to take a dose of physic every twenty-four hours. This is an age of refinement, and the simple operation of cooking is now turned into a very complicated art; a fashionable table presents much to take the eye, and please the palate, but, under the disguise of nourishment lurks a slow but deadly poison, which our epicureans dream not of, until they are visited with a complication of distempers. The cause of disease is never ascribed to intemperance; but when a man finds himself visited with disease, it is immediately said that the baker's bread is the cause of flatulency and heart-burn, and with all other distempers incident to a life of intemperance. It is true, that an immoderate use of fine wheaten bread, with the articles of modern cookery superadded to foreign wines, will create distempers in the body; but the bread is not the cause of these distempers, and it is something strange that they should be ascribed to the use of a healthy simple substance, and not to that villanous compound which every day is to be found on a fashionable dining-table. The medical profession know well that bread in itself is not the cause of disease, had they the *disinterestedness* to declare so. But something must be assigned as the cause; and to give the true one, would perhaps be the occasion of lessening the importance of a certain class. Be this as it may, we all know that self-interest goes a great way towards forming the opinion, and my medical friends must excuse me for what I have said, or may hereafter say. I am a baker, and if my profession is attacked, I certainly have a right to defend, whoever he may be that makes a false assertion.

Many a learned man has said, that the baker's bread is not made from pure flour; in this statement they are perfectly correct, but they that make it, I am persuaded, do not know what fine flour is, although they are using it every day as an ornament upon what, otherwise, perhaps, is an empty skull. What is fine flour? This is a simple question, and as easily answered; but will it bake into bread? I answer, No. No baker can make bread with it, nor private family either, with all the knowledge and precaution that learning can give; for, good people, fine flour is neither more nor less than common starch and hair powder, or then our belles and beaux are confoundedly imposed upon!

Now, what kind of bread would this stuff make? Will any person, who gains all his wisdom from the barber's puff, tell me? The idea of it is disgusting, and yet this is the very thing contended for by those kind of people. Knowledge is knowledge, but all knowledge is not wisdom, as every days' transactions may inform the greatest fool, and methinks that those people, who are everlastingly crying for a pure article, would at least show one proof of wisdom, if they used less of it to the adorning of the outward man.

Those who say that bread is not made from pure flour, only tell us, they are not acquainted with the matter, and speak from hearsay alone. It is evident that pure flour, properly so called, will not make a loaf of bread; so this objection falls to the ground. However, where one individual finds fault for bread being adulterated, there are fifty grumbles at the price of it, in the bakers shop, —such people grumble without a reason; but of this hereafter. Perhaps, we may find the greatest argument which these people advance in their own cause, the very argument that can be turned triumphantly against them.

In almost every place, where there are any number of bakers, there are generally to be found a few who bear the name of undersellers; and it may be asked, how are these people enabled to sell their bread so much cheaper than others? The answer to this question might fill volumes, had I time or inclination for it; but, in the first place, the assertion of the undersellers, that their bread is equal to the best, *is not true*; it must either be deficient in quantity or quality. There is one thing in the underseller's favour, which the full-priced baker wants, that is, his trade is a ready-money one, which evidently gives him the command of the market for a year or two. Another advantage is, that he can purchase inferior grain, which, although it does not produce the same quantity of bread, nor yet of the same quality, the good grain does, yet, being cheaper, and probably the baker being ignorant of the first principles of the art, he imagines that this is so much saved, and when challenged for the quality of it, there is always a ready answer at hand. What can you expect, it is cheap bread?

Economy is to be recommended; but there is no economy in resorting to an underseller's shop for bread, whatever may be its apparent price, the purchaser always gives the full value for what he buys. Indeed there may be a saving in one sense, it being of an inferior quality, may prevent the people from eating so much of it, as when it is good; but otherwise, there is great loss, if the underseller intends to pay for the grain that he purchases, and means to give the full weight of his bread. It may be called an unjust insinuation to say, that the underseller does not give full weight to his bread. I cannot, from my own knowledge, assert that they weigh it universally light; but it is in their power to do so, and if half baken bread may be brought forth as a proof that such things are done,—such proof may be found every day in the principal places of the British Empire. But perhaps the underseller does give weight; in that case, does he pay his merchant? I refer my readers to the bankrupt list for an answer to this question, it is very likely that some conspicuous names may be found there every three or four years. But what has the public to do with this, it may be asked, the man only hurts himself: this I deny, that man who makes it his business to become a bankrupt every two or three years, instead of ruining himself, brings honest men to beggary, and establishes his own credit the more firmly in the eyes of the world. We will suppose that an extensive dealer, (no matter what his profession is,) with underselling, becomes a bankrupt in the course of two or three years, his previous credit being high,—his dealings extensive,—he perhaps can fail four or five thousand pounds in debt,—he calls a meeting of his creditors, and offers perhaps two or three shillings in the pound, which is accepted, as his creditors consider that if they lose at this time, by giving indulgence, they may make up this loss at a future period in the course of business. Besides, the sum for which the failure is made, being great,—the dividend upon each account makes a respectable appearance. But we will suppose again, that the great man's failure is the cause of two or three smaller dealers being brought to the bankrupt list, what is their fate? Do they get a settlement as easy, and as favourable as the great man? By no means; the man who fails for a hundred pounds, must pay ninety-nine pounds nineteen shillings and elevenpence three farthings, or then he is a rogue to all intents and purposes, and no person afterwards will give him credit for a shilling. How it happens, that the great man is made an honest and respectable one, by his name being so often emblazoned in the *Gazette*, while the little man is ruined for ever by the same transaction, it puzzles me to tell; but it is certainly the case, I do not say that it is a matter of speculation,—facts will bear me out in my assertion.

A few years ago a certain gentleman thought proper to become a bankrupt, (for the sixth time I believe,) his debts amounting only to the moderate sum of four thousand pounds, or a little above that,—he shut his shop on the Monday,—made a settlement with his creditors on the Tuesday,—paying, according to report, five shillings in the pound. On Wednesday he was a better man than ever, and on the Thursday I saw him on horse-back, sporting his figure on a noble animal, which, at this day, could not be purchased under fifty pounds. But the contrast,—at the very same time another man, though not in the same line of business, by sheer misfortune, was reduced to the necessity of calling his creditors together. But here, alas! the poor fellow reckoned without his host,—the sum he failed for was a trifling one, amounting only to a hundred and twenty pounds, and none of his creditors would pay the least attention to the notification sent to them more than once, and to this day the whole debt hangs over the poor man's head, while the other got a free discharge that moment it was applied for. The difference of these two mens' condition was simply this,—the great man was an extensive dealer, and an underseller to boot; while the other, in his business, was rather circumscribed, and he kept to regular prices in his line of trade; moreover, the underseller had received the public thanks of the official authorities in the place he resided, for his disinterested conduct, in disposing of the manufactured article to the public cheaper than what he bought the raw material for from the first merchant, and this circumstance perhaps helped to rule the roast a little; be this as it may, the great man was reckoned an honest one, while the other was, and for aught I know, is still deemed a rogue.

A fair competition is needful; but the underseller is the bane of society, the scourge of his fellow men, and the ruin of the world. Let them say what they will, every one must live by his trade or profession, whatever that may be. In the bakers case, the law has assigned him a certain allowance for the expense of trade, and his own maintenance, which, in Scotland, amounts to nearly twelve shillings per quarter. This is a very fair allowance were the money all paid, and no discount given; but long credit accounts, never paid at all, and the heavy discount given now-a-days, reduces these profits considerably, even to the full-priced bakers; what then must it do to the underseller? On the supposition, that the wheat is eighty-four shillings per quarter, the full-priced baker should have a shilling (his allowance by law) for a quartern-loaf; but if the underseller does, as he professes to do, that is, sell the loaf at ten-pence, must not his profits be nominally less than nothing. To state the question fairly, a quarter of wheat, when reduced into standard flour, will produce, when the wheat is above an average quality, ninety-six quartern loaves; on the supposition again, that the wheat is eighty-four shillings, every quartern loaf should be a shilling, which gives the baker a profit of twelve shillings a quarter; but off this twelve shillings, there is eight shillings of discount to be taken, which leaves only four shillings of profit per quarter to the full-priced baker, to pay all expenses. The underseller again, when he sells his loaf at ten-pence, (gives no discount,) gets for his ninety-six quartern loaves only eighty shillings, being four shillings less than what the wheat cost him before it was sent to the mill; how a man can carry on a business, and pay all expense upon such a return, and be an honest man at the same time, I own I cannot tell. The line of my understanding is not deep enough to fathom the matter, unless we suppose a very unsupposable case indeed, namely, that these gentle folks sack of flour is, like the widow's handful of meal, always increasing according to the consumption required.

I own that I always look with a suspicious eye upon the underseller, whatever may be his profession, there is not one of them that make good their pretensions to the letter; in fact, their specious puffs are nothing but a little high scented vapour sent forth to allure the avaricious and unwary into a gigantic man-trap, if I may so term it, that they may be the more easily fleeced of their money. Were there no other evil done than the stripping of fools of what they seem to have in too great abundance, this might be borne with; but when it is considered that while the underseller is so generously serving the public, the honest man is left to starve, besides being branded as a rogue through the whole world, there is certainly something to complain of. Let people consult their own interest, where was there ever a healthy community after undersellers crept in,—where was there ever an article, no matter of what description, that was not lessened fully twenty per cent. in quality, after an underseller took to the management of it? In short, the underseller is a selfish animal, he lives for himself alone, and Proteus like,—he can assume many different shapes to accomplish his own ends, all indeed under the specious pretext of serving the public. Let the public judge fairly, can that man be honest who sells his goods at a cheaper rate than what he bought them for? It cannot be, else the thief might make that excuse at the foot of the gallows, and say, that when he robbed the rich man he did no evil, as he gave two-thirds of the proceeds of his plunder to the first two poor men that he met with upon the road. An underseller, in almost all cases, must either cheat his first merchant, his customer, or himself. Now, which of all these crimes is the greatest in the eye of the law, will any of our long-headed gentlemen inform us? I own that I cannot; but this I may affirm, that he who sells cheap, on purpose to deceive, cannot, in strict justice, be called an honest man; and the law says, that the receiver is as bad as the thief. We are certain that if there was none of the former, there would be none of the latter class in the world!

CHAPTER II.

Different kinds of Bread,—The constituent principles of Flour, the most profitable grain for a family's use,—Leaven,—How procured.

There are three kinds of bread baken with the meal of corn, these three are either *unleavened, leavened bread*, or *bread made with yeast or barm.* Unleavened bread can be made from the meal of all kinds of grain; but proper leavened bread can only be made with wheaten flour, or the teff of Abyssinia. Our British grains, with the exception of wheat, is in a great degree destitute of the principles of fermentation, properly so called, at least nine of them are capable of producing a light and solid loaf of bread.

Unleavened bread is simply meal and water mixed together into a pliant dough, with occasionally a little salt, according to the taste of those who are to eat it, and baken without any other preparation. Unleavened bread, when baken, is quite solid, loses bulk in the oven, and to sedentary people, it is very indigestible. There are many people, however, very fond of this unleavened bread; that made with wheaten flour is very palatable to almost every one, when properly baken into thin cakes, not too dry; it is however a very unprofitable way of using flour; perhaps it is not generally known, that unleavened bread loses both weight and bulk when baken.

The driest meal always retains a moisture in it, unless it is in a state that is not fit for baking at all. Now, the greatest part of this moisture, with the water taken to make dough, must be evaporated before the bread is baken, if unleavened,—flour loses the least, beans and peas rank next, after that oatmeal, then barley-meal follows, as losing the greatest weight.

The flour of maize, or Indian corn, is sometimes used in this country to bake unleavened bread; but it is not very palatable to those who have been used to other kinds, besides it is a very troublesome article to work amongst, it is not adhesive enough for the purpose of baking.

Oatmeal is greatly used in some parts of Scotland, and many of their southern friends think proper to ridicule them for it; but the Scots would be foolish were they to suffer themselves to be laughed out of a healthy diet. Oatmeal, notwithstanding the ridicule cast upon it and the eaters thereof, is certainly an excellent article for a family's use, when used properly. The idea that it is of a heating nature, is not just; if it were so, why is it recommended by the most skilful surgeons, as a cooling draught? As for the assertion, that the use of oats is productive of that far-famed distemper the itch, is ridiculous; it is productive of no such thing, and the Scots, however they may be jeered for it, may stand a comparison with any of the inhabitants of Britain.

Oatmeal, although a wholesome, and a remarkably nourishing diet when boiled into porridge, and taken with plenty of sweet milk, is far from being a profitable article to make into bread. As porridge, it is excellent in a family, and it should never be used in any other way; when baken into bread, every eight pounds of meal will lose three in the baking.

Barley-meal is another unprofitable article to make bread of for a family's use, it is indeed very inferior to oatmeal in every respect, unless it is in the taste of it, which is rather more pleasant. This meal, however, is greatly used by a number of people, as being, in their opinion, a cheap article. Its cheapness, however, is only apparent not real; independent of losing its weight in baking, it is in itself very unsatisfying, and does not remain long upon the stomach. Those that eat much of the bread, made from barley-meal, will seldom be free of that troublesome distemper, called the heart-burn. One pound of standard wheaten flour contains as much nourishment in it, as two pounds of barley-meal.

Beans and pease make a very strong bread; but it is not good for sedentary people. Those who work out of doors, may use it constantly if they choose; but I would not advise those who work within doors to eat much of it if they can avoid it, as it is very indigestible.

In some parts of Scotland the people bake with this meal what they term hearth bannocks, in the following manner:—A certain quantity of meal is taken and made into a very stiff dough; while the person is making and working the dough, a quantity of dried wood is burning on the hearth. As soon as the wood is consumed, so far as not to give forth any smock, the hearth is swept clean, the bannock put on it, and the glowing embers around and over it, and suffered to remain so until the bread is baken. All who have eaten of this bread give it an excellent character; but it is nothing the worse of a piece good fresh butter to help it. Bean and pease-meal do not lose so much in the baking as either oat or barley-meal; the bread that is made from it is really good, its only fault is, that the constitutions of many a one cannot bear it.

Biscuits of all kinds is termed unleavened bread, but the term is improperly applied; sea-biscuit is of course unleavened bread, but such as are baken with eggs, sugar, and butter, cannot be called so. It is true there is no yeast or barm, nor leaven, properly so called, amongst these, but there is what comes to the same purpose. Eggs, sugar, butter, and volatile salts make a light biscuit, and therefore they cannot be called unleavened; the property of leavened bread is to remain solid.

The Jews still adhere to the commandment of eating unleavened bread during the passover, which they make themselves of fine flour. This unleavened bread is made into very thin cakes, by bakers of their own, so as no Christian may touch them.

There is a great deal of unleavened bread made, and even in our own country much is used; it necessarily must be so, where there is a scarcity of wheat, as that grain alone, of all the grains that we possess, is capable of fermentation. And I am sorry to say, that there are thousands of acres on the surface of my native country at the present day lying waste, where wheat might be raised to advantage. But this species of agriculture is circumscribed in many places by absurd leases, and in others by prejudice. It is reckoned by many, a piece of great extravagance to eat a piece of wheaten bread. If eating the cheapest article is extravagance, I own that these people are right, but not otherwise!

It is a very foolish idea that people have got into their heads, that they will be ruined by eating wheaten bread. True, indeed, in singular seasons, other grains may be cheaper, but in ordinary cases they are not. The refuse of other grains is food for no man, and in some, especially oats, there is a very great deal; but in wheat I may say that there is not. If ground, according to the English plan, which I have stated before in hinting of the miller's work, there is not a pound out of a quarter of wheat, but what a family may make use of. Oats lose one-half in the mealing, and three out of eight in the baking; in short, every grain that is cultivated in Britain loses both in mealing and baking, wheat excepted.

Wheaten flour baken into unleavened bread (with the exception of sea-biscuit) will give bread for flour, and into leavened bread an increase of one pound and-a-half to every eight pounds of flour; besides, it is more nourishing. Wheat is truly a valuable grain, and its cultivation cannot be too extensive, where the climate will admit of it at all, and it is to be hoped, that in a short period, the poorest of the land will have enough of it, and to spare.

Although other grains will not ferment alone, that is, cannot be baken into loaf-bread, they may be greatly benefited by a proper mixture of wheaten flour. Baken into unleavened bread, wheat and beans make a most excellent mixture; some prefer pease, but it is stronger in the taste than the beans, otherwise the quality of it is the same. A mixture of barley makes a pleasant bread to the taste, but it is liable to the same objection as the pure barley-bread, being very unprofitable, and creating the same distemper by a constant use of it. Wheat and oats make rather a harsh eating bread, either leavened or unleavened. Rye is very pleasant; but when it is used, there should be some molasses, or any other sweet, put amongst it, which improves the taste of it greatly. None of these mixtures will answer the baker's purpose; they make an excellent family bread, far superior to any of the meals baken by themselves; but the baker would not get his own money were he to attempt to bake them for public sale. The baking of unleavened bread is evidently an unprofitable way of using meal of any kind of grain, but as no other kinds of meal will bake into leavened bread but that of wheaten flour, where no wheat is to be got, unleavened bread must be put up with. There are, however, many who reject the use of wheat on account of the expense of it. I repeat it again, that this is a mistaken idea; wheat produces the cheapest bread of all the grains which this country yields; I have tried the experiment over and over again, yet seldom could produce bread from the meal of other grains equal in weight and price to that of wheaten-flour. It is true, that the bread is solid, and where there are a number of children to feed, it may be reckoned advantageous to use it; of course necessity is no law, but where no necessity exists, those people consult their own interest but little indeed, who prefer quantity to quality in food for their children.

Leaven was probably discovered by accident, or by neglect, as wheaten-flour will ferment when mixed with water into a thin paste, if proper time be allowed it; but however discovered, whether by accident or design, the invention, has added greatly to the benefit of man; but before entering upon the subject, it may perhaps be necessary to give an account of the constituent principles of wheaten flour.

Chemists tell us that these principles are three—the *Amylaceous* principle, or starch,—the *Saccharine* principle, or sugar,—and the *Glutenous*, or animal principle,—all of which must be mixed in a due proportion, to produce a good loaf of bread. It would perhaps be more correct to state the principles of wheaten flour as four, namely, gluten, starch, mucilage, and sugar; this, indeed, is not the arrangement of modern chemists, but the results of analyzation will warrant the conclusion; besides, in the very best flour, there is always a small portion of earth to be found, which I believe no chemists have ever taken notice of. All these principles can be easily separated, the one from the other, by a very simple process, namely, in the following manner:—

Take any quantity of fine flour; but to have a correct idea of what we are about, say that it is four ounces; make this into a stiff dough, with an ounce-and-a-half of pure water, then work it well, making it very smooth. When the dough is well wrought, knead it under clean water, and change the water repeatedly, until it comes off perfectly colourless, taking care in changing the water gently, that no sediment may escape from the vessel in which the washing operation has been performed. When the water comes off colourless the work is done, what remains in the hand is the gluten, or animal principle,—the starch falls to the bottom of the vessel in which the water has been put, a solid heavy substance; the mucilage swims upon the top of the starch, and the sugar is held in solution amongst it and the water.

In four ounces of good flour, there will be found an ounce of gluten when newly washed, an ounce of starch when dried, the rest is mucilage and sugar, with the exception of the earthy part, which may amount to six or eight grains.

Gluten, when newly extracted, will tell what the quality of flour is at once; the greater the quantity of gluten contained, the stronger is the flour; but if there is a greater proportion than one-fourth, an additional quantity of yeast is required to make a light loaf of bread. The colour of this substance, according to chemical report, is a light gray; but in truth the colour of it is various, partaking of every shade, from the darkest to the lightest gray, according to the nature and colour of the soil on which the wheat grew. When the wheat has been taken from a light soil, whatever may be the chemical properties of it, the gluten will be of a very whitish gray, but when taken from moors, or a heavy loam, the gluten will be black; and according to the quality of the grain, coarse or fine, so will the gluten be.

Gluten is very elastic when newly extracted, and has all the appearance of an animal substance; but, contrary to the received opinion, it does not putrify on exposure to the air. When dry it is semi-transparent, very brittle, and forms an excellent glue when dissolved in the spirit of wine.

Of starch, I believe little may be said, it is a substance known to every woman in the land, some of whom use it in a most unmerciful degree, to the evident advantage of those nations from whence we import our cambric.

Mucilage and starch are said to be one and the same thing; to me, however, it appears, that they are two different principles,—in the process of washing, the starch falls to the bottom of the vessel, while the mucilage swims upon the top, and by no means can they be incorporated together while in a liquid state, unless they are brought to a fermentation. Starch, when dry, is a heavy body in comparison of the mucilage in the same state, which is formed into an impalpable powder. It is this mucilage which forms the finer particles of flour that flies about when a flour sack is shaken, and it may be seen in every flour-mill any day, adhering, in the shape of powder, to any projections in the walls, or the roof of the house. Some economists use this powder instead of that which can be procured in the shops, for their hair. It is also the substance that is sold by the starch-makers, under the name of sowens, which, by the by, is a dish much relished by many people, although it must be confessed that it is but soft meat at the best. Those who wish to make this dish to themselves, have nothing to do but wash a piece of dough under water, as before directed, then take the starch away, and let the mucilage and water remain to settle; when the water gets clear upon the top, it may be changed, if thought necessary; if not, pour it off as clean as possible, then add a little milk or clean water, and boil it up to the consistence of a thick paste; put it into a flat dish, and when cold, sup it with sweet milk.

From whence it arises that there is earth in the best wheaten flour, I cannot say; my first opinion was, that the earth was embodied in the grain, but after experiments has at least thrown a doubt upon the matter, perhaps it is an adventitious substance adhering to the outside only, that no process of cleaning can take away.

The saccharine principle, or sugar, is very abundant in wheat, and it is, in nature, the same as the sugar of other vegetables, and may be obtained by evaporation.

It is on a due admixture of these constituent principles of flour (with the exception of earth, which is rather detrimental) that depends the production of a good loaf of bread; an excess of any is hurtful. When the gluten predominates, the flour is very strong, but it will not work free, an excess of sugar makes it ferment too freely, and if it is not taken particular care of, either in giving it time or heat, it will soon run into an acid. Again, when the mucilage is beyond its due proportion, which happens when the wheat is sent damp to the mill, or cut unripe in a damp season, the bread will never dry in the oven, and when in changeable weather, it soon gets mouldy. An excess of gluten may be overcome by the application of a little sugar, and an excess of mucilage, unless the grain has been greatly malted, by a little oatmeal, well dried, and dressed as fine as flour, but this latter article is prohibited.

Starch is properly the nutritive part of the grain, and it is seldom that it is found in excessive quantities, even in the best; but when this happens to be the case, the flour is useless for baking into loaf-bread.

When a spunge is properly set with sound flour, and good yeast or barm, the saccharine principle, or the sugar of the flour, assimilates itself to the yeast or barm, and generates a greater heat in the spunge; or, in other words, the mixture of the two produces a volume of carbonic acid gas, which would fly off as generated, were it not for the solidity of the starch, and the elasticity of the gluten, which confines it for a certain period, according as heat or yeast is applied. The gluten being very elastic, this gas acts upon it in the same manner as common air being thrown into a bladder. The bladder expands, until it reaches its utmost latitude, and if forced beyond that it will burst; so it is with the baker's spunge, it rises up in the same manner, and by the same means, until the gluten is stretched to its utmost extent, the gluten then gives way, the gas escapes—the spunge gradually falls, and is then ripe, as termed by the bakers.

Without the gluten, the spunge will rise more rapidly, and to a greater height, but whenever it reaches to a certain point, it drops at once, and does not go gradually down; at the same time it always feels short. It is also to gluten that bread owes its lightness and solidity. The water that is taken to make dough, in the oven is converted into an elastic vapour, which raises the loaf, and the gluten being dispersed through the whole, acts as so many supporters to it, and keeps it to that expansion which the elastic vapours had given it. When the gluten is destroyed (which is done by malting) the bread having no check in the oven, will, as in the case of the spunge, rise to a greater height; but whenever the peel is put below it to take it out, it will fall directly down in lesser bulk than when put into the oven.

It may be surmised, from what I have said, that spring-wheat should make as good bread as winter-wheat, having the gluten in as great quantity. Spring-wheat, however, is greatly deficient in sugar, and although this might be remedied by artificial means, the starch in general is in too great abundance, and the mucilage does not possess that spirituous strength which is requisite to produce a free fermentation.

When sound good flour, with all the constituent principles in due proportion, is mixed with warm water into a thin paste, and allowed to stand for a few hours, it will swell up; this is the commencement of fermentation. When it comes to a certain height it acquires a spirituous smell,—it then drops, becomes an acid, and is then what is properly termed leaven.

In this process, the sugar is converted into an ardent spirit, the starch into an acid, and the gluten, with the grosser parts of the mucilage, hastens into putrefaction, and here lies a principal part of the baker's art to determine when all these operations are brought to a proper height. The operation can only be stopped by baking; were it suffered to proceed, in a little time the whole composition would become a putrid mass, full of vermin, and giving forth a very offensive smell. Indeed the gluten itself may be called a congregation of living animals, at least it soon becomes so, and if a part of this leaven be kept for a few days in the sun, occasionally stirred and moistened with a little vinegar to prevent its moulding, it will present, with the aid of a microscope, an innumerable quantity of live eels.

The most common way of procuring leaven is to mix flour and warm water into a thin paste, letting it stand for a few hours, but if it is wished to hasten the operation, a little sugar, or any other sweet, may be added, and the fermentation will take place the sooner. Whenever the mixture drops, it is then what is called leaven, and is capable of working a greater quantity of flour. For this purpose, more warm water is added, twice the quantity of what was at first used to make the leaven, with as much flour as will make it into a thicker paste than at first; after this is done, cover it close up, until it rises and drops again about an inch, then a third part more of water is taken, (hot or cold, as the season may be), with two ounce of salt to each pint of water, Scots measure, and a pretty stiff dough made,—the dough must get two or three hours proof before it is wrought down, and put into the oven.

In the infancy of the art of baking, leaven was certainly a great improvement, but where there is much work to be done it is not easily managed; it is also an acid, and the bread made with it would not be agreeable to the taste of our modern times. The bread may be apparently sweet when taken out of the oven, but it is only for immediate use, as in the course of a few hours the bread will get sour. After leaven is procured, a piece of dough is to be left to answer the first process of procuring it for the following day's baking; this was the practice in olden times, and even in the present day the practice is still observed on board of ship, where new bread is required, or where there is no malt taken out to make yeast or barm with.

Leaven is now almost out of use in Britain, being in itself an acid, and consequently producing nothing but what we would now term sour bread; it became necessary to procure another and a better agent to produce a fermentation. That agent was found in yeast, but who it was that first applied it to the purpose of making bread does still, and will for ever, I believe, remain a secret. However, as leaven in the first instance was a great improvement, the adoption of yeast was certainly a greater one; ages indeed passed over or ever it was or could be resorted to, but no sooner was its virtues found out than the use of it became almost universal, and leaven, so long held in repute, lost its fame, and was quite discarded.

CHAPTER III.

Yeast, what it is—An Anecdote—Why Yeast was disused in Scotland—Fermentation, how made—Artificial Barm—Various Receipts—Potatoe Barm—Rice—Potatoe Starch—Flour—False Calculations.

Yeast, properly so called, is the froth or scum that arises on the top of beer or ale when in a state of fermentation; the yeast of beer, however, (by which I mean porter), is never willingly used by the baker as a fermenting principle, being too high wrought or ever it comes to his hands, to be of much use. Small, or table-beer yeast is always preferred by the baker, but even where it is most plentiful, proper yeast is not easily procured, what arises on the top only is yeast; the grounds, or that portion of it which settles at the bottom of the vessel is not yeast, although it is sold to the bakers at a very high price as such; yeast, when good, makes a loaf of bread far superior to that of leaven in every respect, but at the same time the bread must be put into the oven when moulded; in the event of getting a proof before setting, the bread will be rough, lose its colour, and eat crumbly.

In London, and many parts of England, there is hardly any other fermenting principle but brewers' yeast, which is sometimes bad enough. Were the proper yeast only sold, and the brewer to give up that pernicious practice of beating the yeast into the beer when in fermentation, I am of opinion that the bread in London, good as it is, would be a great deal better. But this is a reformation not to be expected, when the practice puts so much money in the brewers' pockets, and the Excise laws remain as they are!

In Scotland, the practice of using the brewers' yeast has long been given up, (from some cause which the bakers at that time could not comprehend;) the brewers' yeast got very unfit for the purpose of baking bread, but bad as it was, I believe that the bakers would have been content could they have procured it, but it got so short in the supply that it was frequently a day's work to get a gallon of it, as a singular favour, for payment. Even then, when it was procured, it often turned out to be nothing but grounds, or the washings of beer barrels.

A journeyman baker in Edinburgh had gone out pretty early one morning in search of yeast, and returned at dinner time without a drop, being, as he said himself, in every brew-house in town. "We must have yeast," said the master-baker, "if you should go to London for it, there is not a drop in the house for to-morrow's bread, and bread we must have at all events." The journeyman made but little reply, but shouldering his pail after dinner, set off once more a hunting for yeast,—and his first appearance was about three weeks afterwards, when he came very composedly into the bake-house with a pailful. " Where have you been, Sir, all this time," said his master, in rather an angry tone. " Whare hae I been, Sir," was the reply—" whare hae I been—whare ye bad me gang, to be sure—at Lunnin for the barm." " At London, you blockhead—a journey to be sure,—well, then, have you got yeast at last? " Indeed hae I." " So, pray what have you paid for that stuff?" " Ge'en for't, only four-and-sax-pence, it's no dear to be frae Lunnin; and there's just four pounds o' sterling cash o' expenses, gaun up an' down; a heap o' siller, but no sae muckle either, considering a' things.—Not dear y'st." " Ah! Tom, Tom, the next time you go to London for yeast, bring yeast in reality; we can get bilge-water at home—it is dear barm, and far fetched, truly." " Dear barm, and far fetch'd, indeed," replied Tom, " I'll gang to Lunnin nae mair for't." And he certainly had reason to say so, for, on inspecting his precious purchase more closely, he found that it was as good for the purpose of baking bread as the same quantity of vinegar.

This anecdote is a fact; but years have passed over since the matter happened, and from it has arisen that proverb amongst the bakers, when any thing is amiss, " 'Tis dear barm, and far fetched."

But to return; the short supply, and the badness of the brewers' yeast, did not principally arise from a less quantity of ale or beer being used, but from another cause, in which perhaps the Excise laws was principally to blame. It may be asked, what connexion there is betwixt bad yeast and the Excise laws? I will, Scotsman like, answer the question by asking another one; What is the connexion betwixt the Emperor of China and my breakfast, if I choose to take a fashionable one, that is tea? I suppose that I cannot get it without his permission. It is the same with the Excise laws in a great part; they do not indeed withhold the permission to give me good yeast; but this opposition has forced the brewer upon measures, by which it is merely impossible to get any that is really good.

But, in explanation, the proper yeast rises upon the top of the liquor in a state of fermentation, and when suffered to ferment properly, is always in great quantity. This was a loss that the brewers could not, or thought they could not bear; the selling it for yeast did not come up to the price of ale, they therefore attempted to incorporate this yeast amongst the liquor. They succeeded in this attempt in this manner; whenever the yeast came to a head upon the top of the liquor, they beat it in again repeatedly, by which means the true yeast was incorporated with the liquor, and nothing but grains was left for yeast. This practice was another advantage to the brewers, which was this; the pure yeast is a very spirituous article, and it being incorporated with the beer, made it extremely heady, and the drinker, who was not up to the secret, thought that it was the strength of malt. When a man soon gets tipsey, with drinking ale or beer, of course it is ascribed to the strength of the ale; whereas this heady ale is always the weakest in pure malt; six bushels will go as far, with beating in the yeast, as eight will do without it. Beer, used in such a manner, is little better than poison. Let any person take a little yeast from a working vat of ale, put it on a cloth, and bind it round any tender part of the body for a few hours, and it will have the effect of a blistering plaster. Now, what effect must such stuff have upon the stomach, which is so much more tender than any part of the outward skin?

It is no wonder to me, that the generality of people have taken a dislike to fermented liquors, and betaken themselves to ardent spirits, which is, in fact, the same poison under another name; but, after all, poisonous as ardent spirits are, they are not so bad as ale, whose yeast has been beat into it.

From whatever cause it is, whether from necessity or the mere greediness of gain in the brewer, that the yeast is beat into the beer or ale, the practice is a very bad one; not only is the drink rendered unwholesome, but the yeast is also rendered unfit for baking bread. The yeast, properly so called, is incorporated with the drink, and the grounds of it, which should only be used as dung for the land, is set apart as a fermenting principal for bread.

This practice of beating in the yeast, with other causes, such as drying the malt high, overboiling the hops, &c. rendered what remained in the brewer's possession unfit for the baker's purpose in Scotland. The scarcity of the article, at the same time, made it necessary for the baker to resort to some other fermenting principle, and leaven was again adopted. The old method of procuring leaven, however, was thrown aside, and instead thereof a plan that was first adopted in America was resorted to, and made in the following manner:—

Two ounces of hops was put among six quarts of water, and boiled about fifteen minutes, then strained, and flour stirred in to make a thin paste. When the paste had cooled down to a milk heat, a chopin or quart of good yeast or barm was put in, and well incorporated with it, and covered close up for about eight hours; it was then used for setting spunge with.

This was the barm used by the principal bakers in Scotland for a considerable period, and went under the name of fermentation. There are various family receipts for the making of this fermentation, they are all upon the same principle as the one above; sometimes a little sugar is added, and there is no other difference. Some receipts that I have seen, is for making fermentations to keep, some for three, some for six months. But, however well kept, there is no liquid preparation of flour that will retain its original properties for eight days, instead of six months. Fermentation, to have bread with it at all, must be made every day, a quantity of the old being left as yeast to ferment the new.

The use of fermentation was very troublesome, requiring a deal of attention, and only the very best of flour was fit for the purpose. When the flour was sound and good, and the fermentation properly managed, the bread in general appeared light and solid. It had, however, the fault of the leaven, the bread was only for immediate use, it would not keep sweet for any length of time. The fermentation, as well as leaven, being necessarily sour in itself before it had acquired sufficient strength for raising bread, of course the bread, although apparently sweet when taken out of the oven, soon gets sour afterwards, especially in the summer season.

Thus, with the use of fermentation, there was still a want, the natural sweetness of the bread was taken away, and an artificial taste was given to it, which, in a few hours, become an acid. It was, however, extensively used by the bakers, and the public by degrees got acquainted with it, and at last got very fond of it. It may seem a satire upon the country, when I assert that the generality of the people in Scotland do not relish bread that is perfectly sweet; it is nevertheless true, for all that, satirical as the assertion may seem, that in Scotland I have been as often quarrelled for sweet bread as for sour. This being the case, fermentation was long supported in credit, even after the invention of artificial barm. There are many bakers (old men,) who still prefer this fermentation to the artificial barm, although they universally acknowledge that the bread, baken with barm, is superior to that baken with fermentation.

The idea of making artificial barm was taken from brewers' yeast; many bakers, who never were satisfied with the fermentation, remembered with regret the loss of the brewers' yeast, and wished for a substitute from the same materials, with all its good qualities, and none of its bad. The experiment was tried, and success crowned the endeavour; and the result has been the almost universal adoption of artificial barm in Scotland, and in some of the neighbouring counties of England.

The author of the first receipt for artificial barm belonged to Fife; he was a baker in some town upon the coast, the name of which I have forgot. After he had made a sufficient trial of it himself, he generously sent the receipt over to a baker in East Lothian, a perfect stranger to him; the receipt was as follows:—

First Receipt.

Boil two pints and a-half of water, (Scots measure,) then reduce it to one hundred and seventy degrees, with cold water, and pour it upon two pounds of malt, cover it close, then take two pints and a-half more of water, with two ounces of hops; boil this for an hour and a-half, then put the liquor amongst the malt, and mix all well together. Let it stand until the mash is reduced to a blood heat, then put in one chopin of distillers' barm or yeast as a store, and let it stand for about eight or nine hours, then separate the liquor from the grains, and in a few hours it is fit for use. A chopin and a-half in summer, and two chopins in winter, should be taken to a sack of flour. This barm may be stored with itself for a fortnight or three weeks; but after that, a new store should be got.

This is the origin of all the artificial barm that is made, and is certainly, whatever the world may think of it, a great invention. But the inventor, like all others, who have benefitted their fellow-men, received no benefit to himself. The last account I heard of him, was, that he was a porter in Leith, unnoticed and unknown.

Second Receipt.

Take one gallon (Imperial measure,) of water, and when it comes a-boil, throw a little cold water into it, and pour it directly over six pounds of malt. Let it stand close covered up until the heat is reduced to eighty degrees, then add to it one chopin (the sixth part of a gallon,) of barm, this is what is termed a store. Stir all well together, and cover it close up until it rises, and cracks on the top; then separate the liquor from the grains, and add to the liquor one chopin of water, in which three ounces of hops have been boiled, for about fifteen minutes; this last must be added cold. In twelve hours after straining, the barm will be ready for setting spunge, and rather less than the third part of a gallon is sufficient for a sack and a-half of flour. This receipt, if followed, will produce a very fine barm; but it soon degenerates, unless the store is changed, which should be at least every month; make it twice a-week, and keep it in a cool place.

These receipts are the foundation of all the artificial barm that is made; but, like other good inventions, prejudice for a time kept it in the back ground. Its merits, however, were gradually acknowledged, and a few years after its introduction, several companies of bakers, in Edinburgh, were instituted for the making of it. Those who choose to make their own barm according to the receipts given above, will find an obvious difference in the appearance of it, from that which is procured from the public barm-works. This difference arises from the brewers' yeast, which the barm-makers use as a store, which makes it thicker, but adds little to the strength of it. Were the brewers' yeast the production of free fermented ale, and made from pale malt, the addition of it to the artificial barm would certainly be beneficial; but as it is extremely rare to get brewers' yeast, properly so called, the deficiency is generally made up with exhausted grounds, or the acid feces of porter barrels. When this is done, the barm of course is made thicker, but of such a bad quality, that I have often found it necessary to throw it to the door, as the best that I could make of it.

It would be an endless task to enumerate all the different kinds of barm which, within these few years, have been given to the public. There is, in truth, as many receipts for the making of it as there is for Japan blacking or Indian ink, with the same good qualities to all of them, infallible in their operation, and every one better than another. I grant indeed that they all produce a fermentation of some kind or other; so will pure water if time enough be given, that is, the composition will run into an acid.

In Turkey, yeast is procured from split pease in this manner: take a small tea-cup full of split or bruised pease, and pour a mutchkin of boiling water upon them in an open vessel; set them in a warm place all night, and in the morning there will be on the top a quantity of scum; take this off, and use it as yeast; the quantity obtained will bake two quartern loaves.

The following method is resorted to by the inhabitants of Long-Island in the state of New-York, to obtain a fermentation: Take as many hops as may be held betwixt your finger and thumb, put them, with a few slices of apples, into a quart of water, and boil the whole for about fifteen or twenty minutes; search the liquor, and when blood-warm stir in a little flour, with three or four table spoonful of molasses, making a thin paste; when thus mixed, set the composition in a warm place, and in a few hours the fermentation will be sufficiently strong to mix in more water and flour to make a proper spunge.

These two last methods of obtaining yeast, is only calculated for private families, they will not answer the baker's purpose, nor have they any occasion to resort to such receipts, when so many better is to be got. I do not deem it necessary to give a barm-receipt for every week in the year, and will therefore content myself with giving another, as a

Third Receipt.

Take two ounces of hops, a quarter-of-an-ounce of wormwood, put these into a gallon of water, and boil the whole for twenty or twenty-five minutes, then take the liquor off the fire, and put a little cold water in it, or let it stand a few minutes, then pour it upon three pounds of malt, mash it well, and strew a little dry malt upon the top, and cover it close up, that no steam may escape. Let it stand until it is about sixty degrees of heat in summer, and betwixt seventy and eighty in winter, then take a pound of fine flour, a chopin of barm, incorporate the whole together, covering it close up the second time, and let it stand for about eight hours to ferment; at the end of that period strain the liquor from the grains, and add to the liquor twelve ounces of raw sugar, give all a good stir, cover it up, and in two or three hours the barm is ready for setting spunge with.

This is truly an excellent article, if made according to the directions given above, with sound and good materials; the malt must be the pale kind, and as new as possible, the hops also must be new, and free of seeds. This barm will keep for three months, provided it is well secured from heat and the air; but for ordinary use, it should be made at least twice a-week in summer,—once a-week in winter is sufficient,—keep it cool.

Artificial Brewers' Yeast.

Wash clean seven pounds of potatoes, mash them well with very little water, then stir in three pounds of malt into the mash, and cover it close up, then take the same quantity of water, hops and wormwood, as in the last receipt, and boil them for the same time; when boiled, pour it upon the mash, cover it close up, let it stand until it is betwixt sixty and seventy degrees, then add a quart of yeast or barm as a store, a pound-and-a-half of flour, cover it close up, and let it stand eight hours, then strain it off the grains, and add to the liquor one pound of raw sugar, in two or three hours the yeast is ready for working a spunge.

This yeast does not keep so long as that made from the preceding receipt; but it is remarkably strong. The above measure will give as much yeast as will be equal to two gallons of brewers' yeast, and is much surer in its operation. Perhaps it might supersede the necessity of sending to London for this article by the distillers, but this is only supposition.

Some receipts, which I have seen for making barm, recommends the boiling of the hops for an hour. This I disapprove of, as boiling them for such a length of time, dissipates the spirituous qualities, and the fine flavour of the hops, leaving only a disagreeable bitter behind. The same observation is applicable to wormwood; boiling it too long dissipates the good qualities, while the bad remains.

It has been recommended to rub the hops well with a little salt, or salt of tartar, before they are put into the water. Those that like this may do so; but, for my own part, I cannot recommend the practice. There is no doubt, but that this process helps to bring out the pure essence of the hop sooner; but common salt, if used in the least excess, is apt to stop the fermentation, and salt of tartar, being an acid, is very ready to sour the bread.

The use of wormwood I certainly recommend for its preserving qualities; it stops, in a great measure, that natural tendency that all barm has to run into an acid. It is a bitter mixture I must confess—wormwood added to the hops; the bitter principle of these ingredients, however, are never extracted from them, until that part of them, which is truly valuable, is wasted away by over-boiling.

The best malt for making barm with, is the pale dried, and always as new as possible, at least new ground; after being three months ground, it is then of little value.

I have often thought that wheat malt would make excellent barm, we know that it makes a finer and pleasanter drink than barley malt. This I believe is an article that cannot be procured, and I am not lawyer enough to decide whether or not a baker would be justified in attempting to make it. But I am persuaded, that if wheat malt was properly made, and dried in the sun, and barm made with it according to my third receipt, we would have an article far superior to any that has yet been tried.

Before dismissing the subject of malt barm, may I be allowed to express a wish, that the duty was taken off the malt that is used for the purpose of making it. Government would not lose much by it.

The next barm that I shall take notice of, is that made from potatoes. The use of this root, as a help to fermentation, is certainly a great improvement, notwithstanding the great outcry against them, and the many bakers that have been fined for the use of them. I have had arguments without number with many people upon this subject, all and every one of them indeed owning that the root was a wholesome article. To what then must we attribute this opposition to the use of an article that is confessedly good? Why, to this only, that they were too cheap for the purpose of making bread of, and too profitable an article for the baker, for the public to allow the use of them. The mighty opposition always dwindled down to the poor pitiful shift, that the bakers made a fortune by them; which led to this conclusion, that if the potatoes had been ten times their present price, the bakers would have been enjoined to the use of them by law years ago.

It is confessed that potatoes, according to bulk, is in general not a dear article; but the cheapest that can be got, is far too dear for the baker to make money of them. Thirty pounds of potatoes, of the best quality, will not make a quartern loaf, an assertion which will be reckoned a ridiculous one, if not absolutely false, by many people. The means of conviction, however, is at hand, and there is not an individual, who has the brains of a goose, but may satisfy himself, that what I say is true.

To be convinced, try the following experiment: Take thirty pounds of potatoes, clean them well, and grate them finely down amongst cold clean water, then pass the whole through a flannel bag,—the skins will only remain behind, and in a few minutes a heavy substance will be found in the bottom of the vessel; the rest is pure water, which may be thrown away; what falls to the bottom, is the starch of the potatoes; this take and dry, and you will have from about three pounds to three pounds and-a-half;—the best potatoes will not exceed the highest weight here given; but towards the latter part of the season, will be a great deal less. This starch is all the substance of the potato, at least all that gives weight to the baker, and if it was equal in quality to fine flour, the three pound and-a-half would exactly make a quartern loaf. Then where is the baker's profit in using them, even on this supposition? But it is well known, that potato starch will not take in half the water that the same quantity of flour will do.

Some wise people, who are in general a great deal better acquainted with other people's affairs than they are with their own, assert that many bakers make their bread half flour half potatoes. This assertion can only proceed from gross ignorance, or wilful misrepresentation, and it would be a waste of time to endeavour to argue such people out of their opinion. They can try the experiment themselves, and if they can produce bread ten per cent. in value below that which is got in the bakers' shops, with this mixture, they will do more than any baker in Britain (I may add, in the whole world,) has yet done, or ever will do.

They may indeed put potatoes amongst the bread, but those who do so, will come better to their purpose with pure water. Nine-tenths of the potato goes into a liquid, the other tenth part is all that the baker has to go to weight.

But the wise men of Gotham insist that the use of potatoes is beneficial,—certainly they are so. For what purpose are they used I would ask? They are beneficial, and of great benefit to the baker, and not less so to the public, would the public be at the pains to divest themselves of a little prejudice.

When I say that the increase of bread is not in proportion to the bulk of potatoes used, and yet allow that they are beneficial, it may be asked, wherein does the benefit consist? Simply, I answer, in producing a more free and sweeter fermentation,—the potato, although it does not give weight, contains a strong spirit, so that a less quantity of yeast or barm is required to make a light loaf. This is certainly one great part gained; for, however people may be pleased with the idea of baking bread with barm or yeast, the least show of it, in its best state, is the better bargain. But not only does the potato take less barm, it also sweetens the bread, and makes it retain the fine flavour of new made bread for a longer period, than when baken simply with yeast or barm alone. I have had it in my possession eight days old, baken with potato barm, that many, and even experienced people imagined was not twenty-four hours old.

Potatoes are however of more repute now-a-days than what they formerly were, at least there are very few families, that bake their own bread, but now use them. I have even known some of the medical profession inform their bakers, that if they did not put potatoes amongst their bread, they (the physicians,) would go elsewhere, where such bread was to be found.

The greatest quantity of potatoes used by any baker, is fourteen pounds to a sack of flour,—it cannot be said, that the baker makes a fortune by this. They certainly improve the quality of the bread, and for that purpose alone are they used, not, as has been asserted, to cheat the public, by imposing upon them a spurious article. Were the bakers even willing to do so, it is not in their power to put many potatoes among their bread, and the report of bread being half potatoes, and half wheaten-flour, and sold for pure wheaten-bread, is a complete falsehood, whoever was the propagator of it. As potatoes are only used as an acid to fermentation, as such I shall now consider them, and proceed to give the most approved receipts for the making of this potato barm or yeast:—

First Receipt.

Take eight pounds of potatoes, boil them well, then mash them, and if dry, put in a little water; when the composition is so cold that it will not scald the hand, put in a chopin of barm or yeast, with two or three ounces of sugar; in a few hours the fermentation will be complete for setting the spunge,—the above quantity will bake a sack of flour.

Second Receipt.

Take one pound of potatoes, boil them, and mash them well, putting them through a drainer with a little water; when cold enough, add two ounces of sugar, and two table spoonful of yeast or barm; in twenty-four hours the barm is ready for setting the spunge,—the above is for a bushel of flour. It is said that this barm will keep for three months if bottled, and kept from the air. I rather dispute this, I do not think it will.

These two receipts are calculated for private families; but the principle of them might be adopted with benefit by the baker. The practice of putting sugar, or any sweet, amongst yeast or barm, is highly conducive to a free fermentation. It adds strength to it, and will frequently bring it on, when by appearance the composition is quite dead.

Third Receipt.

Boil seven pounds of potatoes, mash them, and put them through a sieve, as thick as possible, and when milk warm, put in a quart of barm, and cover all close up for the space of four hours. At the end of that time, have other seven pounds of potatoes boiled and mashed, put them through the sieve also, but a great deal thinner than the first portion. Then mix all together, and let the whole stand for other three or four hours; it is then ready for setting spunge with. The above quantity is for a sack of flour.

There are some bakers who boil their potatoes, mash, and store them all at once, this answers the purpose very well. I think, however, that boiling them two or three times is preferable; to be sure, it is an additional trouble, but then the barm is so much the stronger for it. This third receipt is the common mode adopted by those bakers who use potatoes.

Fourth Receipt.

Take fourteen pounds of potatoes, boil and mash them well, and put them through a sieve, with as much cold water as will reduce the heat to seventy degrees. Then put in one chopen of barm (that made by the third receipt of malt-barm) and cover it close up, letting it stand for six hours. Then take one pound of the finest ground rice, put it on the fire with half-a-gallon of water, and boil the rice into the consistence of a thick paste, stirring it well all the time of boiling, or then it will stick to the bottom of the pan, and be burned. When perfectly boiled, reduce it to a proper heat, say sixty degrees, with cold water, and put it amongst the potatoe yeast. Let the whole work together for two hours; it is then ready for setting spunge with; there must be plenty of room in the vessel in which the composition works, as it generally rises to a great height. The above quantity is for one sack of flour.

The use of rice, I believe, is something new, and I am of opinion, that few will find fault with it, as it does not come under the usual curse of cheapness. I apprehend however, that few, if any, bakers ever heard of the use of this article, or the value of it. Indeed, I know of none that do not use it; the discovery was made, not by me, but by another baker, in a manner that might he called accidental, but how it was discovered is not worth repeating.

Fifth Receipt.

Take half-an-ounce of wormwood, two ounce of hops, and put them on the fire with three quarts of cold water; let them boil for about fifteen or twenty minutes, then take them off, and let the liquor stand to cool, covered close up. Next take seven pounds of the best mealy potatoes, wash them clean, and boil them, skins and all; when boiled, mash them well, adding the hop liquors to them, then let all stand close covered up until the heat is reduced to about seventy degrees, then take a pound and-a-half of flour, a quart of good barm or yeast, and mix all together, letting the whole stand close covered for eight or nine hours, then put the composition through a drainer, and add to the strained liquor one pound of raw sugar, cover it up for two or three hours; at that time it is ready for setting spunge with. A quart and a-half is rather more than sufficient for a sack of flour; if potatoes are used as in the manner directed in the last receipt, one quart of this composition is sufficient for a store for the next brewing.

This receipt makes the cheapest yeast or barm that is known, it is also remarkably sure in its operation. I never knew it fail, and it gathers strength with age; properly secured, it will keep sweet for months, and still retain the properties of new yeast. One precaution, however, is necessary for those who may chance to use it, namely, the spunge must not be allowed to get too ripe; let it be taken sharp, that is, when it begins to drop, then give the dough a good proof, and with flour, if an average quality, there will not fail to be good bread, both light and remarkably sweet.

Since writing the above particulars relative to the value and use of potatoes in the art of baking, the opinion of the public (the learned part of it I mean) seems to have undergone a complete revolution, inasmuch as by a short transition they have passed from the one extreme to the other; the potato is now converted from being a poisonous ingredient in bread, to be one of the healthiest alimentary plants for the purpose which the country produces. I will not at present stop to inquire into the reason of so sudden a change, but I may take notice of a few inaccuracies in the statements that have lately been made, whereby many people may be led to believe that they have gold in their pockets, when, at the best, it is only but gilded brass they are in possession of. It is true, that learning has done a great deal towards bettering the condition of the human race; but this new light, which has in a manner burst upon us instantaneously, relative to the value of potatoes, is too glaring for the eyes of ordinary mortals like the Author of this (perhaps) useless work. I plead for, and recommend the use of potatoes, and I believe that I know the value of them, and what they can produce, as well as any man in Britain; but I would keep them in their proper place; doing this, they are valuable, place them above wheat and we completely subvert the course of Nature, and become allied to those wise men who in former years spent their substance in the transmutation of metals, or in the search of a universal elixir, that would bestow immortality upon the perishing body of man.

Our alchemists of former years, in their foolish hunting after the philosopher's stone, stumbled, as if by accident, upon some noble discoveries, and perhaps it may be reserved for modern alchemists in vegetable fare, to make greater still; at least, it must be allowed, that if our ancient theorists have not as yet discovered *the transmuting powder*, our modern ones have discovered what is equivalent to it; namely, the extracting above a thousand pounds from an acre of ground every year when planted with potatoes. The gentleman who signs himself Medicus, has made this self-evident by his notice to the public through the medium of the newspapers, and in some of his statements he is pretty correct, but in the most essential points he wanders far indeed into the uncultivated wilds of speculation, which, if any person follow, they are sure to meet with disappointment. That potato starch and Indian arrow-root, possess the same chemical properties, and that the two substances cannot be distinguished by most chemists, is perfectly true; but if Medicus will take the trouble to investigate the matter more carefully, he will probably find that the stuff which is sold in Britain as Indian arrow-root, is, a proportion of it at least, extracted from horse-chesnuts. Much has been said about the adulteration of Indian arrow-root, but there is no adulteration in the case; arrow-root, potato, and chesnut-starch, are, chemically speaking, one and the same substance; being so, wherein does the adulteration consist? Is a pint of pure water adulterated because another pint of water equally pure is put amongst it? Certainly not, but this is not the point at issue. This arrow-root, starch, or whatever name it is known by, has ascribed to it medicinal properties, which it possesses in a very moderate degree. As a food for children it is worse than useless;—as a nourishment to the weak, is worthless. A pound of good oatmeal, in either case, is superior to three of this stuff; and how it happens that it has obtained such a character in the medical world, would puzzle any person of common sense to tell, unless by repetition of the vulgar proverb—" that far-off fowls have fine feathers,"—as a medicine cannot be good unless it is dear.

It is the opinion of many wise people that nothing can be good that is the production of their native land; to this cause, with its consequent high price, may be ascribed the celebrity of arrow-root, and I venture to say, that before long, when people learn that the same article can be procured at home from the common potato, it will lose every medicinal property that it formerly possessed. It is an article of food, it forms a delicate dish when made into puddings or pancakes; but as for being a cheap one, that is out of the question; flour at five pounds a-sack is cheaper. This is a statement which runs counter to that of Medicus, but, without stopping to inquire upon what premises his calculations are founded, it will be as proper perhaps to state a few facts.

I give Medicus credit for his intentions; he is evidently a man of a generous and benevolent disposition; and wishes to advance the comforts of his countrymen, but when he states that the produce of an acre of potatoes, when reduced into starch, and sold at the price of Indian arrow-root, would produce above twelve hundred pounds, he labours under a sad mistake indeed. It cannot be that he speaks from practical knowledge; personal observation would have discovered at once, and it would have been wisdom on his part to have tried an experiment or two before he sent forth so confident a statement to the world. How many potatoes will an acre of ground produce? In ordinary seasons, sixty bolls, four hundred weight to a boll, is reckoned sufficient to an average crop,—but I will concede a little here, and say, that seventy bolls is an average one. Now, how much starch will these seventy bolls of potatoes produce? Every ten pounds produces one pound of starch; but, for the sake of even calculation, I will say that the twenty-eight pounds (that is a peck) produces three pounds; here then, we have from one boll, or four hundred weight of potatoes, forty-eight pounds of starch, which, being sold at two shillings per lb., (the price of arrow-root), will bring £4, 16s.; that multiplied by seventy, is £336, nearly £900 less than Medicus makes it.

This lesser sum is indeed a great deal for an acre of ground to produce, but the statement is made upon the assumption that a pound of potato starch will bring as much money as a pound of arrow-root at the present day; but this is assuming too much, make the article plentiful, and you lessen the value of it greatly; it will no longer be used as a medicinal drug, and as an article of diet, it is dearer than fine flour. Say that a peck of potatoes (twenty-eight pounds) is sixpence, from this there are three pounds of starch procured, which is, (not taking the price of labour into account,) two-pence a-pound, being a shade less than the retail price of the finest flour at present; besides, in the composition of puddings, pancakes, and so on, one pound of flour is equal to three of starch.

I grant that it makes a delicate pudding; I presume, however, that few of the labouring classes will be willing to sacrifice a peck of potatoes for the sake of a light dinner, when two-pence worth of fine flour will answer the purpose equally well, if not better, whatever the higher class may do.

This account of Medicus' is rather contradictory; however, my conclusions are drawn from facts, from repeated experiments, and I have rather over than underated the quantity and quality of the article produced—my last experiment was made a few weeks after Medicus' statement made its appearance, and from seven pounds of early potatoes, in the middle of September, I procured ten ounce and a-half of starch. The refuse was also dried, which was about ten ounce more, but good for no purpose as food, either for man or beast; it had all the appearance of lime that had stood exposed to the weather for a hundred years. Had the solid parts of the potato been dried together, and then ground, the produce would have been twenty ounce of second flour, in value equal to eight ounce of wheaten flour, which, in my opinion, was giving away a shilling of silver for a sixpence of copper.

We may try to reduce the potato into flour and see if we can make it turn out any better than when the starch only is extracted. I grant that there will be a greater quantity, but the quality of it will be very inferior, and the best return will not equal a crop of grain. There may be scientific methods for procuring potato flour with which I am unacquainted; but until a way is found out whereby the liquid part of the root can be converted into a solid body, the following simple operation is all that is necessary for the purpose.

Take the potatoes and wash them clean, then grate them down amongst cold water, and allow the pulp to settle, then take off the water and add to the solid part left as much clean water as was taken away. Incorporate the pulp with the clean water, let it stand to settle as at the first, then repeat the operation; do this repeatedly, until the water come off colourless. Afterwards, take the pulp, divide it into small pieces, dry it in the sun, or with a very slow fire, then grind it, and from a peck of potatoes, if they are of the best kind, there will be nearly four pounds of ordinary second flour. If fine flour is wished for, the potatoes must be scraped, but this lessens the produce, and it is better to extract the starch at once: because, if the potatoes are scraped, they will not give the same produce of flour as they will do of starch, when unscraped.

Now, it may be asked, will it be a profitable speculation to manufacture this flour, and neglect the culture of wheat? I answer, No. In the first place, the quality of the potato is far inferior to that of wheat, but let us make a calculation of the whole produce.

Suppose an acre of ground produces 70 bolls. One peck produces 4lb.—One firlot 16lb.—One boll 64lb., or 4 stone 8lb.—But, for the sake of even reckoning, call it 5 stone—70, multiplied by 5, is 350 stone—350, divided by 20, is 17 sacks 10 stone. Here we have from an acre of ground that produces seventy bolls of potatoes, seventeen sacks and a-half of second flour; but, as the quality of this flour, compared to wheaten, is only as one to three, we must divide this seventeen sacks and a half by three, which makes three sacks twelve stones of second flour. The neat produce of an acre of land, the value of which is £8 : 6 : 8, reckoning the flour at 30s. per sack, the estimated value of a sack of second flour when the wheat is at 70s. per quarter.

I have made this calculation on the supposition that seventy bolls from an acre is an average crop of potatoes, but it is well known that fifty bolls is nearer the proper estimate; this of course must lessen the produce greatly, but I wished to give every advantage to our vegetable alchemists. Let us next proceed to make a calculation of what the same ground will produce when planted with wheat. The average produce is variously stated, according as it may suit the *convenience* of those who make the statement; however, I will take that produce which the greatest part of our agriculturists agree to, that is, five quarters per acre.

According to the allowance made by law to bakers, the weight of wheat should be thirty-six stone per quarter, but this is substituting the highest for the average weight in the best of seasons, and I will draw my conclusions from what is really the average weight, that is, thirty-four stone; the produce of this will be—

Fine flour, - -	120	stone, or	6 sacks.
Seconds, - -	10		0
Thirds, - -	3		0
Bran, - -	25		0
Total produce, - -	158		
Waste, - -	2		
Which makes - -	160	the full produce.	

The estimated value of six sacks,		at 46s.	£13	16	0
Second, 10 stone,	ditto,	at 30s.	0	15	0
Thirds,	ditto,	at 20s.	0	3	0
Bran, - - - -			1	0	0
Total sum, - - - -			£15	14	0
From this is to be deducted for grinding, the sum of - - - -			0	15	0
Which leaves a balance of - -			£14	19	0
Carry over, - -			£14	19	0

Brought over, - -	£14	19	0
The value of the straw in most places is £5 sterling, but I shall reckon it only	3	0	0
Making in all, - - -	£17	19	0

An acre of wheat, on the lowest computation, produces - - -	£17	19	0
An acre of potatoes reduced to flour, -	8	8	6
In favour of wheat, - - -	£9	12	6

which is certainly an object to those who wish to be economists.

These two calculations are made when each ingredient is reduced into flour, or, in other words, when the last consumer gets it into his possession. In the hands of the agriculturist the disparity of price is completely reversed. On the supposition that the seventy bolls of potatoes sell at eight shillings per boll, the neat produce is £28.

Five quarters of wheat at 70s. 6d. is -	£17	10	0
Value of straw, - - -	3	0	0
	£20	10	0
In favour of potatoes, - - -	7	10	0
Making in all, - - -	£28	0	0

According to this statement, the agriculturist who raises seventy bolls of potatoes from an acre of ground, and sells them at eight shillings per boll, realises seven pounds ten shillings more than if he had raised five quarters of wheat, and sold that wheat at seventy shillings per quarter; but here the advantage stops,—reduce the whole into flour, and the value of potatoes is gone. Granting that the five stone of second flour, which a boll of potatoes produces, is equal in strength to that of wheaten, the value of it is only seven shillings and sixpence, and how any person can give eight shillings for the potatoes, and make a fortune by producing from them flour to the value of seven shillings and sixpence, I own it is past my comprehension.

But are there not such fools amongst us? It is to be feared that there is. Their expectations may be great, but these expectations will be sadly disappointed; and who, I would ask, is to bear the blame? A gentleman, to whom the agriculturists of Great Britain are greatly inindebted, has publicly stated, that a hundred-weight of potato flour can be produced for thirty-six shillings; granting this to be so, if the same gentleman will consider, that by only adding twenty shillings to this last mentioned sum, he may purchase two hundred-weight and a-half of the finest standard flour, he surely will not lend his name to such an Utopian scheme as the making of potato flour. For what purpose can such an attempt be made; is it to supersede the necessity of cultivating wheat? If such be the case, how foolish an idea is it. Potatoes are a valuable root in themselves, and an average crop will pay the farmer, but making them into flour takes that away for which they are valuable; the spirit of the root is dissipated, and that which is left, starch or flour, contains but little nourishment indeed, when compared with the same weight of wheaten flour, or even oatmeal.

The statement of Medicus, that potato starch and Indian arrow-root are one and the same thing, is perfectly correct; but he erred greatly in his estimated produce of an acre of ground; neither can I concede to his opinion, that the maker of it would get two shillings a-pound for it. The virtue of it is only in its being thought a foreign article; take that name from it, and expose it as the starch of potatoes, and I question much if four-pence per pound could be procured for it. It is something strange that such virtues should be discovered to be in potatoes *now*, the starch of them is no new thing, almost every old woman in Scotland has used it, or at least knows how to make it thirty years ago, and how wonderful is it that none of them could approve its value to a thousand part. It seems to have been ordained that this our age should be an enlightened one, consequently that knowledge should be increased; but it is to be hoped that our learned men of every description, in their hurry to get through the world with credit, will not leave wisdom behind them. I grant that there are many things in existence that the unlearned man never dreamed of, but then to balance that, our learned men have given a local habitation and a name, to what has no existence at all.

CHAPTER IV.

Spunges, the different kinds—How to regulate them—A Thermometer, what it is used for—Salt, Scots and English—Making Dough, &c.

What I have said in the preceding Chapter, may perhaps be thought as bearing hard upon the veracity of certain individuals, whose object it was to improve the condition of the lower classes of society by the statements they have made. I do not wish to be mistaken in this matter, I certainly give them credit for their intentions, it is praise-worthy; and I am convinced, that if those gentlemen had investigated the matter properly, such statements would never have been made public; they are very incorrect, and their only tendency is to lead the unwary astray; it was my own case a few years ago, when I first learned the method of making potato starch. I had not the least idea indeed, that such a quantity could be produced as Medicus asserts, but I certainly believed that I would get a great deal more than one pound from ten, and it was not until by repeated experiments that I was convinced, and obliged to give up the hopeful prospects I at first entertained.

These prospects being disappointed, some one may be asking, why did I not make that public which experience taught me? I answer, that I made the matter as public as it was in my power; but my name not being an *honourable one*, what I advanced was held as the ravings of a romantic brain, and I was laughed at for my trouble. In fact, there was no inducement to proceed farther; it never entered into my head to impose upon the fashionable part of the world by a spurious article. As a medicine, I always decidedly condemned the use of arrow-root, consequently its substitute, potato starch, for a diet; it was by far too dear, ever to think of recommending it to the notice of any one for the purpose of bettering the condition of the poor classes, and there was only another purpose to which it could be applied, that is, for the dressing of linens. For this purpose perhaps, it is superior to the starch of wheat, but it was often reported to me that wheaten starch, if not a superior, was at least a cheaper article, and it is well known that our economists in general prefer a cheap article to a good one, when that article is of our own production, with foreign commodities; however, it is otherwise, there is not any thing that is brought from abroad can be good, in the estimation of gentlefolks, unless it is dear. Hence the reason that arrow-root is so much thought of, being, as it was supposed, a foreign article, and dear at the same time, virtues were ascribed to it that it never had, and few were aware, that while they were using this article as a renovating medicine for the sick and the infirm, they were making use of what was reckoned poison when in another shape. I allude to that outcry which has been raised against the bakers for using this root; how many of them have been punished for doing so, perhaps by those very people in the Magisterial office, who regularly fed their children with the same stuff, under the name of Indian arrow-root.

I know well enough, that the medical profession will dispute the point with me when I say, that Indian arrow-root and potato starch are the same in properties, chemically speaking, and they will say that the one is far superior to the other. I grant that it is, but only in the price thereof; the nourishing qualities of each are the same; the only difference betwixt them is, that when both are reduced into a liquid state, the potato starch grows watery on the top, and gets sour in the course of three or four days; whereas the Indian arrow-root, if genuine, does not; this is all the difference that really is, or can be discerned, betwixt these two substances. In short, potatoes are now getting a name they do not deserve; to make flour of them is only throwing away money; as for starch, it may be useful to the ladies of the land for the sake of their linens; but, as an article of diet, it will not answer in ordinary seasons, and as a substitute for arrow-root, that is out of the question altogether.

To the baker the potato is useful, but not as has been asserted to make money by them, any farther than the production of a finer loaf of bread; for this purpose also rice is recommended. The potato assists the fermentation, and the rice gives solidity to the bread; both united, gives a richer flavour,—keeps the bread sweet, and makes it retain these good qualities for a longer period.

A little warm water and sugar incorporated with flour will produce a fermentation, this is leaven; adding a little more water and flour renews the fermenting process, this is termed a spunge; when this has risen and dropt again, water is taken with salt sufficient for the flour intended to be used,—the water, salt, and spunge, are first incorporated together, then the flour is added, and made middling stiff,—it is then dough. But as the first fermentation does not take place until the whole substance becomes sour, of course the spunge will be an acid, and likewise the dough.

When yeast was discovered, leaven was very properly thrown aside, being far superior to it. Brewers' yeast, however, when used, requires a deal of attention; it will neither wait nor be waited upon; it also takes a great quantity of it to make a light loaf. On an average one gallon of brewers' yeast is required for two sacks of flour, and it will often happen, that the bread will retain a strong taste of the yeast after being baken, besides it is not easily procured good, for reasons before stated. This being the case, artificial barm, if properly made with good material, is superior to it.

But, whatever fermenting principle is used, a light loaf cannot be made off-hand, that is, it will not be light by mixing up the flour, water, yeast, and salt at once, and putting it into the oven directly. This is what is done with unleavened bread, and the sooner it is put into the oven, after being mixed, the better; but all light bread requires a previous preparation, and this preparation is termed a spunge.

It is not impossible, but that at some future period, some yeast or barm may be discovered that will produce a light loaf without the setting of a spunge. But before such an improvement take place, the bakers must be content to follow the old fashion, of setting spunges; and while he is doing so, or overlooking the work, his own thoughts may be, that his own trade is still in its infancy.

These spunges require a deal of attention, and a skill that practice only can give; to overlook is not to learn, and none can learn but those who put their hand to the work.

All spunges, let the fermenting principles be what they will, (leaven, yeast, or barm,) must be quarter, half, or a whole spunge. Which of these is the best? I own I cannot say; I have tried the whole, and have had good bread, as well as bad, with each. But before proceeding farther, it may not be amiss to say a few words about the use of a thermometer in a bake-house.

For my own part, I rather disapprove of the use of this instrument, as being calculated to do more evil than good; to a steady man, the fingers is the best thermometer that can be used. It is a very difficult matter to procure a true glass; but, independent of this, it is seldom that the heat of a bake-house is the same two nights running, and it is as seldom that two different parcels of wheat or flour can be wrought by the same heat. Let it also be considered, that it frequently happens that the temperature of the air changes through the night, and then it may be seen of what use a glass is in a bake-house. Were there to be no changes from heat to cold, and from cold to heat, and were flour always of the same quality, requiring always the same heat to work it, and could a true glass be procured, then they might be used. But in this variable climate, and with stuff of various qualities, the baker would do better to trust to his finger-ends than to the best thermometer that ever was made. I grant indeed that these instruments may sometimes be of a little use to that man, who pays more attention to the bottle than his work, and sets his spunge three times a-week half drunk. When this happens, the fingers cannot be a true guide, and the glass may give a general idea of the heat of the water; but it will only be guess work at the best. At the same time, the use of this instrument is very ready to generate a careless disposition incompatible with the business of a baker, and to a careless man it is an excellent excuse,—the glass bears the blame of every mistake.

I have been in houses where these instruments were used, and in houses where they were not used; with truth I declare, that where they were awanting, seldom a mistake was made; whereas with the use of them, in variable weather, we were seldom right.

From what I have said, it will be understood that I am no advocate for thermometers, and of course the observations that I shall make upon spunges, will be without reference to this instrument at all. I will leave it to the baker's own opinion, whether he will use one or not; but were my opinion to be taken, he had better let them alone. The first spunge I shall take notice of, is the quarter-spunge.

Spunges in general,—Quarter Spunge.

Of quarter-spunges, there are two kinds, one set very stiff, the other remarkably thin,—the end in view is the same; but the thin or weak spunge takes up the longest time.

For a thin spunge: take a third part of the water, bring it to the heat required, mix in a little flour into it, then put in the barm, stir it well, and then put in a little more flour to bring the spunge to the consistence of a thin paste, and cover it up. The fermentation first begins on the edge of the spunge, a light white froth rising up, that gradually overspreads the whole. This may be reckoned the first stage;—the second commences when this froth begins to subside, and clear pellucid globules rise in its stead. When the whole of the froth has disappeared, the spunge is ripe, and should be made up directly; for in a short time it will get black upon the top, and has then become an acid.

When the spunge is ready for lifting, take another third part of the water with a little salt, and stir in a good quantity of flour, making it a great deal thicker than in the first spunge, cover this up, and let it stand until it drops about an inch and a-half; then take the remaining third part of the water, with all the salt, and make dough, and give it an hour's proof before throwing it out upon the table. This spunge requires to be set at two o'clock noon, to be ready for lifting at eight.

For a stiff quarter-spunge, the water and barm is the same; but more heat is given to it, and it is stirred into the consistence of a weak dough; it is then covered up, and allowed to stand until it drops, a quarter of an inch is sufficient, it is then ripe; and the after process is conducted in the same manner as the thin spunge. The ordinary time for this spunge, from its first setting until it is ready for lifting, is four hours; if it is ready before that time it is too quick; if behind that time it is too slow,—the consequence of either extremes is sad or sour bread.

I cannot say whether or not the use of potato barm will cast up the appearance noticed above, in the thin spunge; but the potato barm works a thick spunge remarkably well.

A Half Spunge.

For this the one half of the water is taken, and brought to a proper heat; a little salt, and all the barm stirred in general not so stiff as the thick quarter spunge; it is then covered close up, and allowed to drop from an inch to two inches, the rest of the water is then taken with the remainder of the salt, and the dough is then made. The working of this spunge requires that a good proof should be given to the dough before it is thrown out upon the table.

A Whole Spunge.

When a whole spunge is set, take a little salt, all the barm, and the same of the water, with the exception of as much as will dissolve the salt when the dough is made. This spunge should only be allowed to drop about an inch, and a good proof given to the dough.

When flour and barm is of the best quality, the working of a whole spunge make an excellent loaf; but when this is not the case, the half or quarter spunge should be adopted, unless the flour is made from malted wheat; but of this hereafter.

The following method of working a spunge, and bringing it forward into dough I would recommend; it is a troublesome operation, but good effects will follow from it. On the supposition that the baker uses the malt-barm made by the third receipt in this work, I would give the following directions: Boil seven pounds of potatoes, mash them into a thick pulp, and put them through a sieve; when milk warm, put in as a store a chopin of barm, and let it stand three hours; then have other seven pounds of potatoes mashed into a thin pulp and sieved, then added to the other, let it stand other three hours, then boil a pound of ground rice, reducing it with cold water to a milk heat, and put it among the potato barm. Incorporate the whole together, and let the composition stand other two hours, it is then ready for setting the spunge.

When the spunge is to be set, make up the liquor to the third part of what is required, and stir it up middling stiff, and let it drop about an inch and a-half, put in a little salt in the first spunge. When it has dropt about an inch and a-half take another third part of the water, but no salt, and stir up the spunge the second time, not quite so thick as at the first, and let it drop the second time about an inch; then take two thirds of the salt, and the remaining third of the water, and make a weak dough, give it a good proof; when sufficiently proved, take the remainder of the salt, and mix it finely amongst as much flour as will make the dough a proper stiffness; work the whole well together, and give it another proof for half-an-hour before it is weighed.

This, I must acknowledge, is a tedious way of working, and will feel very awkward at first; but after it has been acted upon for a little time, the additional labour will be little thought of, and the advantage of it will soon be felt. Perhaps it may be deemed unnecessary to keep out a little of the salt at the first making dough; but, in my opinion, as well as that of many others, the bread is greatly improved by it; at all events it is nothing the worse of being well wrought.

The heat and thickness of spunges is regulated by the season of the year; quarter spunges are indeed always set at the same stiffness, both in summer and winter; but in setting a half, a whole, or in making up a quarter spunge, attention should be given to this part of the work. The stiffer a spunge is set, of course a greater heat must be given to it to bring it forward in the same time as a thin spunge. When a thick spunge is set in summer, it acquires too great a strength before it drops, and requires more cold water to keep it sweet, than what the barm is able to overcome, consequently the bread is heavy and damp. On the other hand, when a thin spunge is set in winter, although the fermentation takes place the sooner, yet, if the bake-house is not the closer, the cold air gets the easier into a thin spunge, and should this happen it will not drop until it is sour.

Every spunge in summer generates heat, and when it is fully ripe, the heat increases rapidly. This evidently shews, that a thin spunge, requiring little heat, should be set in summer. In winter, however, the greatest danger is, that the spunge will get too cold, and therefore it is proper that one should be set that will retain the heat.

Quarter spunges consume a deal of time; but they are certainly a great help to the barm when it is weak. In working this spunge, however, care must be taken that the first spunge does not get sour, if it does, the second spunge, as well as the dough, will be sour also. An extra allowance of cold water may recover it so far, and the bread may apparently be sweet when taken out of the oven; but it will be damp and heavy, and in twenty-four hours the sweetness will leave it.

A half spunge requires from four to six hours of less time; but more salt and barm is required, and it cannot be wrought so cool as the quarter spunge.

A whole spunge should never be adopted unless the flour and barm is of the very best quality, and then it should be set at such a heat, as that it may be ready in the course of seven or eight hours.

It will sometimes happen that the spunge is not ripe exactly at the time the journeyman wishes it, and as few of them are very fond of waiting upon their work, they may resort to some means or other to make the spunge drop before it is ripe. This is easily done: take the rolling-pin, and give the bottom of the trough two or three sharp knocks, and it will drop directly. I may observe, however, that this trick will not succeed, if the spunge is not nearly ripe, or set with unsound flour.

Should the baker be surprised with his spunges dropping rapidly in his absence, and suspect that something has been done to it,—he has only to use a little cold water, and that will tell him at once. After the spunge is stirred in, and all the liquors properly mixed amongst it, take a chopin of cold water, and throw it on the top of the spunge; if it has been taken too soon, the water will swim upon the top; but if the spunge has been ripe enough, the water will gradually sink. By the same rule a sour spunge may be discovered, if the smell does not betray it, the cold water will sink to the bottom of a sour spunge the moment it is put in.

The only remedy, when a spunge is taken too soon, is to give it a longer proof in the dough; indeed, in the summer months, a spunge should be rather taken quick as otherwise. It is easier bringing it to a full proof in the dough, than recovering it when sour in the spunge.

When a batch of bread has got sour, which will sometimes happen with the most circumspect, despatch is the best cure, with a quick oven. All bread in general is the better of a quick oven, especially that which has got hard or sour upon the baker's hands; many a batch of bread is spoiled merely with a cold oven. I was once a few months in a house, where, by some mismanagement or other, our batch happened to be sour one cold frosty morning, I have forgot what it was that prompted us to turn the dough to the door; but certainly we did so, where it stood more than half-an-hour exposed to the biting frost. The cure was an effectual one, the bread proved to be remarkably sweet and light; but to the last it cut damp.

In winter, if the bake-house is not all the warmer, sometimes the frost air will get into the spunge; when this happens, it will never drop until it is completely sour. To remedy this, let the water be as hot as possible, with about half of the salt, and make a weak dough, confine it as much as possible, cover it close up with warm sacks, and give it a good proof for two or three hours; then take the rest of the salt, with flour sufficient to make the dough a proper stiffness, and give it another good proof before weighing down. This process will do a deal of good; but, after all, the bread will be heavy, and always damp; but heavy bread, in my opinion, is better than that which is sour, though none of them can be called good.

The quantity of salt required varies with the season, the quality of the flour, and of the salt itself; for salt, as well as other things, varies much in its quality. Our Scottish salt at the best, is but an indifferent article, and, in fact, is a disgrace to the country. It is not the weakness of it that I find fault with, although four pounds of English is equal to six pounds of Scottish salt, but it is the impurity of it. It is full of what chemists term the muriate of magnesia, or what is generally known by the name of bittern. Surely some means might be devised to take this out of it; when salt is new, it is very disagreeable amongst bread, and the baker often gets a bad name for what he cannot possibly avoid.

Five pounds of English, or seven pounds and a-half of Scottish salt, is sufficient for a sack of sound flour; but in some seasons, a great deal more is required. The bakers in Scotland reckon that a sack of flour will take in thirty pints of water, Scots measure, and allow four ounces of salt to each pint. I have, however, been witness to six ounces being used, and barely enough to make the bread part in the oven, when the season happened to be a wet one.

There is a kind of bread baken in many places without salt, called home-baked bread; from what cause it receives this name, I am at a lose to determine. I never knew that Great Britain is, or was an importing country for this article of daily consumption. This home-baked bread, as it is termed, is made from the whole meal, that is, the wheat is ground, but not dressed, bran and all is used. To some this bread is very palatable; but it very soon acquires a strong taste of the yeast or barm, and should always be eaten new,—it does not keep like bread with salt in it. To those who can afford to drink two or three bottles of wine a-day, this bread is an excellent article,—the constant use of it will supersede the necessity of going to the druggist for a purgative; this bread is sufficient for the purpose, and is an excellent physic. I suppose that the learned profession will not thank me for this intelligence.

Similar to this, was the bread baken of old called ravelled bread. The only difference was in our forefathers using salt.

Mescelin, mashloch or maslin bread, is baken from a mixture of different kinds of meal; but that, properly so called, is a mixture of rye-meal and wheaten-bran. This bread was greatly used some two or three hundred years ago in Scotland, and was what our gentle-folks allowed to their household-servants, and the poor of the land. I suppose the lady that went a hunting after butter for the servants' fish, had heard of this somehow or other, and as the ancient bread would not go down, was determined to imitate the customs of ancient times as much as possible.

What is now termed maslin bread, is baken with equal parts of rye and wheaten-flour,—the coarse bran being only taken out of each. When both are dressed fine, the bread then assumes the name of bolton-bread. Both of these kinds of bread is really good; but they are not in general use, although, with regard to health, better bread than that made from rye and wheat cannot be procured.

There was another kind of bread baken from rye and wheat a few years ago, in some places; but, it seems, somehow or other to have lost much of its former fame. We seldom hear any thing about it, and that little perhaps is only to disparage the baker who attempts to bake it for the public,—it is, however, an excellent article.

To make this bread, set the spunge with wheaten-flour, (rye will not ferment alone,) and when dough is made, to every eight pounds of rye-meal, add twelve ounces of molasses, and a few carroway seeds. Whatever size the loaf is to be, take equal parts of rye and and wheaten-flour dough, divide each into three parts, and roll them out. Take first a piece of rye dough, then a piece of wheaten dough, putting the one on the top of other, and so on with the whole; then mould the loaf, making the rye the outside crust. This bread, when cut, will be found in the crumb full of white and black stripes, which has given it the homely name of sheets and blankets. It is a pleasant eating, and a healthy bread; but in general it cannot be made much cheaper than wheaten-bread; for although the rye is cheaper than the wheat, the additional expense of molasses makes up for this. It is this circumstance I believe that makes the people despise it,—the rye is blacker than wheaten-flour, and the addition of molasses makes it blacker still. Now, as the public in general judge the quality of the bread by its colour, or, more properly speaking, the price of it; they expect that the rye, being the blackest of the two, should be the cheapest. Few are aware that molasses are used at all, much less to such an extent.

There is a deal of bread baken under the name of French bread, improperly so called, as it is merely the ordinary dough moulded in a different form, and run alongst the side walls of the oven, and setters (that is pieces of wood,) put betwixt these loaves and the common bread. Many useless and expensive receipts are given for the making of this French bread of a finer quality,—

the whole of which may be safely thrown aside, and the following taken in their place: To every quartern of dough, rather weak as stiff, add two ounces and a-half of sweet butter, and, if agreeable to the taste, a few carroway seeds. This may be deemed a simple receipt for the making of this bread; it is, however, a good one, equal in every respect to those who recommend the use of eggs, milk, &c. which only adds to both trouble and expense, without making the bread any better.

I might now make a few observations on the table-work; but this is a mechanical operation, which no directions can give a proper idea of,—the best way will be to say little about it. All the directions that any baker can give in words is of little value. The baker, if he wishes to learn, must put his hand to the work, and give his heart to it also, or else he will never learn; one caution I may give, both to teacher and learner, that is, do not learn too fast. This may seem a very strange caution ideed, it is however a necessary one: my meaning is, that the learner should be properly grounded in the first rudiments of the art, before he is pushed forward to more complicated operations. Chaffing is the first part of the business that a baker learns; moulding is the next; these two operations are intimately connected with each other; but if the learner is suffered to proceed to moulding before he is almost perfect at the chaffing, he may become a good moulder, but he never will become a good chaffer in his life. I have seen many a good moulder a bad chaffer; but I have seldom seen a bad chaffer become what could be really termed a good moulder. Chaffing is the ground-work of all the table operations; when the learner is complete in this, all the rest will become quite easy to him.

The term chaffing is applied to the working of small bread, such as rolls, biscuits, and so on; moulding is applied to large bread, quartern loaves, half-quarters, &c. penny-bricks are moulded; but the term means the shape they are put into, and being put into the oven with quartern loaves, &c. All rolls are what is termed open-stone-bread, that is, they are put into a hot oven, and the door is never shut upon them. What is properly termed the batch, is quartern loaves, &c. put all in together, and the oven door shut upon them for a certain time.

Rolls are put into boxes when wrought down, and allowed to get a good proof before they are put into the oven. The batch bread in general is first moulded, and then put into the oven, the smallest bread being moulded first, and last put in.

Some bakers allow their batch bread to stand a considerable time upon the table after being moulded, for the purpose of giving it a proof. This plan makes a lighter loaf; but it also makes it cut crumbly, unless there is an additional quantity of salt put into it,—and then people say that it is alum.

When bread is preparing for the oven, the baker's mechanical skill and chemical knowledge is brought to the test; many one will work a spunge properly, and bring it through every stage, both of spunge and dough, and fail only at the oven mouth. Nor is this to be wondered at, the whole elements must be put in motion to produce a good loaf, and every one of them must be brought to a certain state at one and the same time. Every new parcel of wheat or flour require a different degree of heat to bake it, and the oven must be in a certain heat for these different kinds of flour, at a certain time. To gain a practical knowledge of the oven is not so easy as many are apt to suppose,—it must be acquired by long experience. It is not looking at the work that will teach a baker, he must put his hand to it; but very few indeed learn this necessary part of the work when apprentices. The fact is, they have not time. The term of apprenticeship is too short, and, amongst fifty journeymen bakers, it will be a wonder to find ten that can set a batch properly. Indeed it often happens that the first batch a baker sets is his own, seldom or never putting a peel in the oven all the time he is a servant. What kind of workmen these people can be, any person may judge; and as they have learned themselves, so they learn others, who may have the fortune to be placed under them.

As the baker has no instruments to take the different degrees of heat for the different kinds of bread, he must trust to his sensations, or make a pyrometer of a little flour. He sweeps his oven clean, throws in the flour, and in a moment he will decide whether or not it is in a proper state; if the flour burns, with a great smock, the oven is too hot; if it lie white upon the stones, it is too cold; but when it gradually turns brown, the oven is then in a proper state for a batch of loaf bread.

The squaring an oven, that is, putting in the setters, is an operation early performed; but it requires experience, a quick eye, and a steady hand to set a batch properly, and he is a clever man who can do so, without spoiling a loaf some way or other. Much indeed depends upon the person who hands in the bread, and if he is unskilful, with weak dough and a warm day, the man at the oven mouth has much need of patience. Dough is a soft substance, and requires a deal of art to handle it; a baker's fingers should never be made of cast metal, nor held in the position of a cat's claw, when she is going to spring upon a mouse.

CHAPTER V.

Correctives,—Alum, where and how used, its properties,—Magnesia worse than useless,—A question put to Learned Men,—Oats, what they are used for,—How to guide Malted Flour.

The baking art is a very complicated one; but when every thing is going right, it imparts a pleasure to the mind, which any art, purely mechanical, cannot do; on the other hand, when mistakes occur, the vexation is double. Mistakes in many arts may be rectified, but the bakers' never; when his bread is baken, as it is taken out of the oven, good or bad, it must remain so. It is not possible, but mistakes will happen, even with the most experienced; but when bad flour or yeast is amongst hands, by what means is a good loaf of bread to be made? There are seasons when a good sack of flour cannot be procured.

When such is the case, the situation of the baker is far from being an enviable one; there is no allowance made to him for bad stuff, neither is he allowed to apply any corrective whatsoever to amend it. It is an impossibility to make good bread from bad flour; but there is a possibility to improve it greatly, if the law did not interfere; were the baker allowed to apply correctives, the bread would be much the better for the application. When the flour is unsound, the baker is completely puzzled,—he dare not add any thing to the produce of the wheat to correct the bad qualities of his flour, although such correctives are simple and healthy in themselves, and easily to be found. Truly the law has great respect for the morals of bakers; for sooner than he will be allowed to dispose of what is termed an adulterated article, the whole population is condemned to swallow an article that is far from being a healthy one. I allude to malted bread, the nasty substance that gathers above the sole of a malted loaf, though pleasant to the taste, is very pernicious to the health; it lodges in the stomach like so much clay. Now, in ordinary cases, this might be in a great measure removed, durst the bakers use the proper means to do so; but they dare not, or ruin is the consequence.

There is an opinion gone abroad, that the bakers put alum amongst their bread, on purpose to deceive the people,—the assertion, when applied to Scotland, is completely false. I grant that in London, and some other places in England, it may be partially used, but not to the extent that many say that it is. But those bakers who do use it, are forced to those measures by the public, who are such good judges, that in nine cases out of ten, they prefer what they are pleased to term an adulterated to the genuine article.

Alum, without doubt, has its good qualities, so has arsenic; it is called a poison, so is honey, if taken to excess. The good qualities of alum may be summed up in a few words, which are these; to a good loaf it imparts an artificial whiteness, makes it firm on the outside; and saying this, I have summed up the whole catalogue. Its evil qualities may also be mentioned; the artificial whiteness leaves the bread as it grows cold, and in twelve hours time the bread is stale, it gets black, and cracked all round. In short, alum eventually spoils a good loaf, and makes a bad one worse; and the baker, who wishes to have a good loaf, should never use it.

I am persuaded that no baker would use this article if it were not forced upon him, I speak in respect of London, the inhabitants of which are very fond of bleached bread, and many of them will not have that with the natural colour in it. Truly the baker is hard beset; the law says to him, that he shall not use alum, or else he will be punished; but what does the public say to this? Why, if you do not use it, and bring yourself under the scourge of the law, we will not eat your bread. With punishment on the one hand, starvation on the other, and the violated law staring him in the face, what is the baker to do? Will any person tell us what; I own that I cannot; but would sincerely wish that people would be consistent. How inconsistent is it to stigmatize with such opprobrious terms the use of this article, and give the praise of honesty to those only who use it to any extent? I allude to undersellers, and even the greatest quantity that these people use, is but trifling in the extreme, and not worth making such a work about.

The quantity of alum used by the bakers in London has been stated by a learned and very worthy gentleman to be thirty-six ounces to a sack of flour. I would ask this plain matter-of-fact *gentleman*, by what means he obtained this information,—who did he get it from? I suppose no person could tell but one who was actually engaged in the baking trade,—and this I am sure of, that no baker would hurt his own trade by asserting such a manifest falsehood. But was the gentleman a chemist himself, and by his chemical knowledge in the properties of alum, inferred so much was used? If such was the case, I am really sorry to say, that for a chemist, the gentleman seems to have been a very ignorant one, else he would have known, that such a quantity of alum would completely spoil the best sack of flour that ever was made. But from whatever quarter, or by whatever means, he obtained this mighty secret, and however his vanity may be flattered by the applause of the public for letting them up to such a matter. He may be a learned man—I make no doubt of this—and I own that I am not,—but the gentleman must just excuse me, unlearned as I am, when I say, that if his statement is not absolutely false, it is very incorrect.

Had he kept to a pound, his statement would have been within the reach of belief, but even this quantity is never used by any baker; the greatest quantity being six ounce to a sack, which was often thought too much. This is a counter statement from the gentleman's before alluded to, but I give my statement from personal observation, and not from supposition, as too many are apt to do. Now, granting that alum is a poison, (which I deny, and let any of our medical gentry prove it if they can), what harm can six ounce on eighty quartern loaves do? It can do none, even on the supposition that the whole of it remains in the bread, which it does not,—two-thirds of it is evaporated in the baking, and all that remains is pure earth.

This small quantity is all that is put in at any time, and by very few of the regular bakers; and even those few that do use it, are under the necessity of doing so by their customers, who choose their bread as they would choose their linens, by its whiteness. The baker, however, who uses alum, whatever may be his intention, will find himself disappointed in his expectations of good bread by it. Good flour is uniformly spoiled by it, unless taking out the natural colour can be called an improvement. This it certainly does, giving it an artificial whiteness for a short period, but as soon as the bread gets cold it will get blacker than if there was no alum put in it. When bad flour is on hand, alum may indeed give the bread a firmness, and make it part in the oven, but it does no other good, the bread is the worse at the long-run for the use of it.

The use of alum is forbidden by the law, and deprecated by the public; why then do the public insist upon the bakers using a forbidden article by their conduct? There is no regular bakers would ever take it into their heads to use such an article, did not the public taste demand it, and even then it is used but sparingly; four ounces to a sack, or at the most, not exceeding six. Let it be recollected at the same time, that of this quantity, one-third of it remains undissolved amongst the water, and of course is rejected. By what means can this small quantity, when only used occasionally, do any harm? I own that I am not physician enough to tell. It has been the practice, and a fashionable one too, for some years back, to say the bakers adulterate their bread by the use of alum. I have stated what is really the case in contradiction to the statements of scientific men, who, I believe, were the first propagators of the report, and kindly gave the public the welcome intelligence that the bakers had combined to poison them. This was kindly done indeed; but much more kindlier to give infallible tests whereby alum can be discovered in bread, were their infallible tests of any use at all. I know but little of science, properly so called, but know this much, that these wise and learned people know as much about the constituent principles of baken bread, as his Holiness of Rome knew of the figure of the earth, when he divided the new world betwixt the crowns of Spain and Portugal. He set the one east and the other west, little considering that there was a possibility of the travellers meeting again. Where was the geographical knowledge of his Holiness—and *ergo*—where is the scientific knowledge of our learned gentlemen? I grant that they have given us tests to discover alum, but these tests are of as much value as the ashes of pease-straw for the purpose intended.

I grant indeed that some of these tests will give the result specified; but this is no criterion of the bread being adulterated. Other ingredients than alum will give the same result, articles which many bakers are not conscious of being amongst their bread, and which it is not in their power to keep out.

Chemists, when they tell us that bread is adulterated with alum, should tell that there is common salt in it also, and inform us what the constituent principles of salt is. This, however, they have not thought proper to do in the promulgation of their report, which has been echoed from one end of the land to the other. It is a well known fact, that soda is found in great quantities in common salt, the English salt especially, with a small proportion of lime and magnesia. Now, to say nothing of the lime and magnesia, will any chemist tell us, and be so kind as inform the public, what the different appearances will be when these tests are applied to alum and soda separately, after going through the process of fermentation and baking? I say there is no difference at all; the soda is the cause of the effervescence taken notice of, and the lime in the salt, with the earth of the flour, forms the precipitate. But, besides all this, may not the water used for the purpose of baking bread be impregnated both with lime and alum; is this circumstance ever taken notice of by our learned gentle folks in giving forth the result of their deep researches to the world? I believe not.

In short, we must have salt without soda, flour without earth, and water without any foreign substance in it, before we can procure bread, that will not answer to the tests given to discover what is termed adulterated bread by the world. For my own part, I cannot conceive what kind of salt it would be in which there is no soda, and I, for one, would willingly let it remain, if our worthy friends would condescend to take the magnesia out of it. This would do more good than discovering errors where there is none; for whatever the public may think of the matter, magnesia is a worse article by far amongst bread than alum, notwithstanding the odious name that alum bears.

By the by, alum might be of great service in such a place as London, where the best water that can be procured is little better than slow poison. Let water be ever so dirty, and full of every impurity, both dead and alive, the application of a little alum will cleanse it in a few minutes.

Notwithstanding the great outcry against the use of alum, a worse article is recommended by our chemical friends, that is, the carbonate of magnesia. One would have imagined, that when alum was rejected, and so much spoken against, magnesia (a compound of every nastiness) would never have been substituted in its place; but so it is, and the people are advised to swallow a substance not much better than chalk.

Whether or not magnesia has the virtues ascribed to it for correcting bad flour, I cannot particularly say; this I know, however, that it completely spoils that which is good, so that if a baker has run short of seconds, he has nothing else to do to obtain a supply, than to mix magnesia amongst his fine flour, and he will have seconds in a moment. Had a baker first tried the experiment of using magnesia, I have not the least doubt but that he would have been severely punished for it; but as its boasted virtues have been discovered and recommended by what is termed a learned man, it has met the approbation of the public. Let us see by actual experiment how its good qualities is to be established.

In the first place, I took two half-pounds of dough, and into one half-pound I put twenty grains of this boasted carbonate of magnesia; into the other half-pound I put none, and they were both put together into the oven amongst the small bread. When the bread was drawn, that piece in which the magnesia was put was very sad and coarse, having the appearance of being baked with second flour, and the dough made with water in which spinage had been boiled, while the other was as good bread as ever was taken out of an oven. The bread was baken on the Saturday, and both pieces laid aside until the Monday following. When inspected at that time, the bread in which the magnesia was could hardly be cut with a knife, it was so hard, having at the same time an insipid chalky smell, and a very disagreeable taste. The other piece remained perfectly moist and sweet at the end of eight days.

So much for magnesia; this one experiment perfectly convinced me that it was an excellent article to do evil, and those who wish their bread spoiled may use it if they please; for my part, I will have none of it. The chemists recommend it to the bakers and the public as an excellent article; and, as a baker, who has tried it, I pronounce it worse than useless. Perhaps it may be said that twenty grains was too much for such a small quantity of bread; I thought so myself at the time; it was however the quantity recommended by the gentleman who first brought its merits into public notice. But let us add, to the property it has of converting fine flour into seconds, the price of the article itself, and that will declare what a valuable substance it is, and how much the world is indebted to the discoveries of its merits. The use of it would only add the very moderate sum of three-pence to each quartern-loaf, or, in other words, twenty-four shillings to a quarter of wheat; a trifling matter to be sure, but whether the baker or the public is to pay for it has not been told us.

After this notice, and my knowledge is from actual experience, I hope no baker, nor any private family, will ever use magnesia, rather let them take the alum, bad and prescribed as it is. Alum improves the appearance of a good loaf for a time, but magnesia spoils it at once and for ever. I am, however, no advocate for the use of alum; its faults indeed are not so great, nor so many, as they are said to be, neither is its virtues of so high an amount as many people imagine, but it is an article that I would not recommend to put amongst bread.

It is true, there are many seasons that flour will not bake without some corrective or another; alum is one, but that is prohibited, neither does a baker wish to use it; magnesia is another corrective, as it is called, and this is allowed, but then it is worse than none; if it remove one fault, it leaves two as bad behind it. What then is the baker to do, or even private families that bake their own bread? Correctives must be had somewhere, and in the vegetable kingdom they will be found, if any baker has the hardihood to use them in defiance of the law, for what I would recommend is also prohibited.

All prohibition, however, is only with respect to the bakers. Private families may use what they please, but perhaps prejudice may operate as a check to the adoption of what I advise.

What I allude to is oats; let no one startle at this intimation, they are not a cheap article, and the flour of them cannot be made so cheap as that of wheat; besides, a very small quantity can be used at a time, perhaps this may reconcile the public to the use of this grain in a backward season; it is the idea that the bakers make large profits, that the public stand in opposition to any new measure, however beneficial. And I have always found it to be the case, that whenever the public were satisfied that the baker reaped no benefit from the innovation, the opposition ceased directly, and if it happened to be a losing concern, they (the public) would go a step further and urge the measure upon the bakers.

When wheat has been cut sound, but afterward gets rain before it is carried into the barn-yard, it is very apt to spring, even in the stalk. When this takes place, the wheat is what the bakers call sprung or malted, and will not of itself bake into a light and solid loaf. The following experiment I have seen tried with success, when the wheat happened to be malted:—

Mix from a half to a whole quarter of the best oats, well dried and sheeled, among nine quarters of wheat, and grind the whole together. Dress the flour fine, and let it stand a considerable time before using it. When it is to be baken, give it a very ripe spunge, (there is little danger of making sour bread), and take as little water as possible to make dough with; make the dough pretty stiff, giving it a little more salt than in ordinary cases, and after all, a good proof in the dough. After the bread is wrought down, give it another good proof, before putting it into the oven, and let the oven be so hot that the bread will scarcely take an hour to bake. When drawn, lay up every loaf on edge, and let it stand in this position until it is cold, and it will be found, on cutting the bread, that although it is damp a little, yet it will not have the malted curl above the sole crust.

The oats, when used, should be well dried, not on a kiln, for that discolours them, but by the sun, or perhaps what may answer as well, upon the top of the oven; few bakers are in the want of such a conveniency. When moulding, every loaf should be well buttered on the end, and at the least every third loaf on the side. The oats, however, should be sparingly used, they firm the bread, but at the best discolour it a little, and they will not pay the baker. When sound flour can be procured, make no mixture with other things, the flour is the cheapest article when good.

This may be deemed a simple remedy; it is so, but it is a good one, if the bread is guided according to the directions that I have given. I am well aware, however, that it is not lawful for the bakers to use oats. The baker is like no other tradesman, he dare not make an improvement upon his art, but at the hazard of being punished by the law, or forsaken by the public. To him the line of duty is chalked out, over which he must not pass, whether that line is right or wrong, and when there is a favourable season he has no occasion, nor will he ever do so. But with all due deference to the wisdom of our law-makers, I think, that when simple remedies are to be found, the bakers should be allowed to use them, for the purpose of correcting bad flour.

Perhaps a few tick beans might be of great service, if ground amongst malted wheat; it is generally reported that such is used in the manufacturing of flour for the London market; if such is the case, it is certainly a great improvement; the London flour is very superior to the Scotch. I cannot affirm this from my own knowledge of the matter, but my opinion is, that beans are used, perhaps one to ten, but this is only conjecture. Without an alteration in the law, the baker who grinds his own wheat must not use beans; but what I have said may be a good hint to a private family,—here there is no restrictions.

BOOK VIII.

CHAPTER I.

Sea-biscuits—Flour, and Soldiers' Bread.

IT does not appear that there is much attention given to the making of sea-biscuit, especially for the royal navy, notwithstanding the simplicity of the operation. When it is considered that the health, nay, even the lives of a meritorious class of men, depend upon this article being properly prepared, it seems somewhat strange that the naval board has not before this looked after the matter. The bread which is baken for the navy, so far from being a wholesome article, is actually the procurer of disease; and I venture to say, that where one man dies by the chances of war, two are lost to the nation from the use of bad provisions. In what state some kinds of provisions are put on board, I cannot say, but the biscuits are never good; and indeed they cannot be so,—they are not baken. To an ovenfull, or a batch of biscuits, twenty minutes of time is allowed from the flour being put on the table to the biscuits taken out of the oven. Can these biscuits be baken? No. They are merely fastened together, then thrown into a loft to dry. How can such dried pieces of dough keep, when thrown carelessly into sacks or barrels, without a single brush being put upon them to brush away the superfluous flour? To suppose they will keep, is supposing an impossibility.

What is twenty minutes to make dough, heat the oven, work down the biscuit, and bake them? It is mere mockery. A batch of biscuits to be properly baken, so as to keep any length of time at sea, should be half-an-hour in the oven, independent of the time employed in preparing them for it. It evidently appears that the present practice allows them only so much of the fire as puts them into a proper state for the propagation of a noxious animal, that breed, fatten, and as soon as they have exhausted the strength of the bread, die in the midst of it. The animal I allude to is the weevil; to eat bread with this creature alive in it, is bad enough; what must the bread be when the animal is dead, and run into putrefaction? to eat such, is swallowing poison little inferior to arsenic in its effects, though not so rapid in its operation. A ship of war may be complete in every part, well found in all kind of stores; but I would advise those gentlemen who have the navy under their control, to recollect, that sound provisions form the chief sinews of war. I believe that none will dispute it with me when I say, that the British seamen are the bravest and the most generous beings in the world, and I think it is a hard case indeed that they should be condemned to eat that bread (falsely so termed) that will no longer afford sustenance to a poisonous reptile.

I have heard it asserted that Government has humanely offered a reward to any person who will produce a biscuit that will keep at sea for a certain period. I rather doubt the correctness of this report, else, why has the discovery never yet been made; it is a secret known to almost every experienced baker in the British empire. But on the supposition that a reward was offered, was it ever intended that if any discovery was made, the discovery was to be prosecuted, that good bread should be procured? Perhaps it was so; but there is too much economy in certain quarters for that purpose, there must be expense to procure a good article. Biscuit cannot be baked without a sacrifice of both time and money, and the plan that I would recommend requires both.

Take two-thirds of second flour, and one of fine, mix well together, and to each bushel of this mixture, add six or eight pounds of fine rye flour, then make the dough as stiff as possible, and work it smooth. Give each batch a full half-hour in the oven, and more if required, but the oven should always be in such a state that half-an-hour will be sufficient; there is a great difference betwixt drying biscuit and baking them properly. The biscuit that is well baken in a good oven soon gets free; while those that are only dried, first turns tough, then gradually dries into the consistence of a fir deal. When the biscuits are drawn out of the oven, spread them out upon a wooden floor where the air is admitted, but in such a manner as not to pass over them, or that is apt to bring them into a crude and raw state again, if the weather happen to be damp. After they are properly cold, which will be in most cases in the space of an hour, clean them one by one, from every particle of dust or flour that may adhere to them, then store them up into an apartment that is perfectly clean and dry, and where the air may be occasionally admitted when required.

When there is much work, as in biscuit bake-houses, it is proper that every day's baking should be kept by itself; newly baken biscuits are much the better of being kept in small parcels for a little time. The most proper manner of proceeding, I apprehend, would be to appoint the Monday morning, to throw the preceding week's baking into one parcel; they may even be packed for a six month's voyage, but if for a longer period, it is advisable to pack none until they are a fortnight old. It is the opinion of many, that any kind of flour is good enough for sea-biscuit; but this is an erroneous idea, the very best stuff is required for the purpose, and where such is not used, it is in vain to look for good bread, much less bread that will keep for any length of time at sea.

There is a great error committed in baking biscuits with flour that is coarse,—they will not keep near the time that fine biscuits will; besides, by the present system, that is, merely drying, and not baking them, they weigh heavier when newly taken from the oven than biscuit made from fine flour. It is true, that in some situations the moisture will evaporate, but before this the biscuits are weighed, and sent off to their destination. Let any person weigh a hundred weight of those dried pieces of dough three months after they are baken, and let our economists say whether or not it would not have been a more profitable concern to have got finer bread well baked. The coarsest biscuits that should ever be baken for sea, are those that are termed seconds; that is, two-thirds of second flour with one of fine; the wheat sound, of a good quality, with one sack, or twenty stone, of fine flour taken from a quarter of it.

Biscuits baken according to the directions here given, will keep for years on land, and for a considerable time at sea too; but if they are intended for a voyage of four or five years, something more is necessary to be done. What I advise may be deemed expensive and troublesome work, but I would imagine that when the British Government are sending the bravest of our warriors to a foreign land, such expense or trouble would be little thought of.

In the first place, I suppose that the biscuit is well baked with sound flour, and properly cleaned from every particle of dust, for if such is not the case the best biscuit is apt to give way; then to secure them after this is done, procure well-seasoned oaken casks, completely charred and washed with liquid nitre in the inside. When this is effected, let the casks get thoroughly dry, then place upon the bottom of each a thin piece of canvas or coarse linen that has been previously also washed in nitre, and dried, then pack the biscuits carefully, one by one, as close as possible, and when full, put another piece of nitred cloth upon the top of the biscuit, then head the cask, and make it air tight. Biscuits baken and packed in this manner, will keep for years in any climate, either on sea or land, provided that they are kept dry and excluded from the air.

I must allow, that if my directions are followed, the quantity of biscuits baken in a given time will be a great deal less than by the present mode; of course the price will be so much the higher; yet, notwithstanding, I presume that this matter should be no obstruction to the adoption of a measure that has for its object the introduction of good bread, instead of those dried pieces of dough with which the British seamen are supplied, which, to say the best of them, are little better than slow poison, at least, whenever the weevil gets possession of them they soon become so.

The purpose for which nitre is recommended is to prevent the growth of the animal, as well as the worm, which often makes a lodgment in the biscuit detrimental to the health of those who are obliged to eat them. Neither the weevil, nor any animal that preys upon bread, will touch it as long as the smallest portion of nitre is about it, and the use of rye flour prevents the bread from getting musty.

The inhabitants of sea-port towns should beware of purchasing what is termed sea-store, perhaps their life, or the lives of others, depend upon it; and it is not the first who has suffered severely (in the purse I mean) by such a purchase. It is rather more than twenty years ago, that an innkeeper purchased a quantity of old stores (biscuit) for the purpose of feeding his horses with them;

these biscuits were half consumed with the weevil, and the consequence of giving such to the horses for food was fatal to the animals. They all died one by one, and the stables had to be filled three times in a short period. The consequence would have been the same to the human constitution had men eaten them; but they were in such a state, that no person of common sense, out of mere choice would have tasted them; of this I am certain, that there are often biscuits of a worse description given out to those who are appointed the guardians of our native land; what then can be expected but disease and death?

There are many biscuits furnished by contract which it would be well were such means not resorted to for the purpose of saving money; both parties have this in view, and it often happens that both are disappointed, nay, ruin is often the consequence of a contract. For this there may be assigned various reasons,—one is, that the operation of the corn-bill has brought on such a fluctuation in the market, that no man can depend upon it, or give a probable guess what the prices will be a fortnight hence. So that if the price of grain get up, the baker who contracts must of necessity be a loser, unless he has a sufficient quantity of stuff beside him at his own price to fulfil his engagement. Even with this the baker is not sure; there are such people as inspectors; these men are not in general bakers by profession, and are no judges of the work; a five pound note will make a bad article pass, while the want of it will condemn a good one. Some of our *friend*s in L—p—l and thereabouts will understand what I mean by this expression.

What blockhead it was who assigned such a small portion of time to the completing of an ovenful, or a batch of sea biscuit, I know not, but certain I am, that it was not a baker who did so, or then he was a foolish one indeed, if he was not worth a more degrading appellation. Such a regulation is equal in stupidity to those laws, which assigns to the maltster the precise period in which every operation, in the making of malt, is to go through. Why, what, in the name of goodness, has any government got to do with how any article is manufactured, so as that article, whatever it may be, is well made, if there is a duty to pay? Let that duty be demanded; but do not interfere with the operative concerns of the workmen. How could I direct a sailor in a storm, or how could that seaman instruct me in the heating of an oven? Would not the advisers, in either case, be considered, and justly too, as madmen? Without doubt they would; where then is the wisdom of our Excise laws? But this is little to the purpose, many will say, as the mode of baking biscuit for the royal navy has not been set forth by legislative enactment. If such is not the case, rules and regulations have been given forth, as binding perhaps, as an act of Parliament, from which there must be no dissent. I ask, why is it so? Give time to the work, and let the work be well done; it is impossible that biscuits can be baken in the time allowed to them in the red house, as well as in private bakers houses, where a certain quantity must be supplied by a certain time.

An extraordinary demand may come at times, for this there should be a stock provided; every baker is well aware, that his work *will not force*, time must be given, or the whole is spoiled, and sea-biscuit is an article that will keep on hand for any length of time if they are properly baken.

It is very likely that I will be censured greatly for what I have said anent the baking of sea-biscuit. I cannot help it, the operation is so simple a one, that it is enough to put any man of the least experience in an angry mood, to see so much stuff spoiled through mere stupidity, or what is worse, through the intention to deceive. What observations I have made is applicable to England,—the biscuits made in Scotland are in general well baked; but the bakers there also err in packing them up without cleaning, and it cannot be expected that biscuits full of dust are to be kept in a pure state for any time; besides, very few biscuit bake-houses are free of the weevil, and it may happen, that in packing biscuits with the shovel, these creatures are put into the sack or barrel along with the bread.

With all the defects of the Scottish system of baking, it is more probable that the biscuit baken there will keep, than when baken in the English houses, on account of being better baken. According to my information, in the red-house there are five men to every oven, and these men must produce a batch every twenty minutes; whereas, in Scotland, the general thing is two men to an oven, and their work is eight batches a-day. This, of course, makes a difference in the price, yet I would certainly conclude it to be a piece of wisdom, to give the men a-day's wages instead of putting them upon piece-work,—there would be a greater probability of the work being well done.

By that system, which only allows twenty minutes to a batch of biscuits, the bread will gain in the weight; but by the plan which I recommend, sound fine flour will lose one pound in eight; seconds, a pound and a-half, and thirds, nearly two pounds, which, I must allow, is one great argument against me. The consideration of cheapness perhaps may sway the minds of some *in power*; but were every thing conducted properly, under the superintendence of disinterested men, I am verily persuaded that biscuit could be baked according to my direction, and the nation would never be called upon to advance an additional farthing for the purpose. Good bread is, however, sometimes not held in great repute; many seamen, with whom I have conversed upon the subject, considered that bread to be the best in which was found the greatest quantity,—not that they relished those animals as a part of their food, but had imbibed the idea, that it was only in good bread that they were found. When asked how they got quit of these creatures before eating the bread, the uniform answer was, that they used to put the bread into some vessel or other, and put them in the oven, and a few minutes served to destroy the whole race.

Without doubt this a ready method to get quit of these gentry; but I question much if the cure is not worse than the disease; it may kill the weevil, but does not remove the poisonous quality of the bread,—the consequence of these creatures making it their habitation. In short, the bread being bad, with which the royal navy is supplied, it is the duty of those who are rulers thereof to have it made better, and this better bread, I contend, could be produced as cheap as the present dried pieces of dough, if all was placed under a proper management.

Flour is often taken to sea, and indeed it is much better to take this article than the present kind of bread, as it is not so liable to destruction; but it will spoil also if not properly secured. Many parcels of flour, that will keep for a considerable time on land, will spoil at sea in the course of a month or two; the principal cause of this, is not from the flour being unsound, but not properly prepared for the purpose. When flour is to be sent to sea for a long voyage, procure wheat of the best quality, perfectly sound; put about the sixth part of it upon a kiln, and give it just as much heat as will bring it to a sweat when thrown together. When it is taken off the kiln, mix the dried and the undried into one heap, and as soon as a sweat comes upon the whole, spread it thinly out, and give it a turn over every three or four hours for three successive days; at the end of that period, put it through high blasted fanners to clean it properly. After this, let it be taken to the mill, cleaned and ground, and allow the rough meal to lie eight or ten days, turning it at least every day for the half of that time; take it then to the dressing mill, and when dressed, let it get perfectly cool before it is put up into sacks; but for sea, the flour must be put into casks; these casks of good oak, well charred, and made air tight; pack the flour into the casks as firm as possible, put them in a situation where no damp will get to them, and the flour may be carried from pole to pole.

I do not know if it is the practice to use charred casks in the navy or not; but it is a practice that should be adopted for all kinds of provisions,—provisions, as well as water, will keep for years in charred oak casks, that would spoil in six months when put into the ordinary casks uncharred. It matters not whether these casks are round or square, custom has sanctioned the use of round ones; but, when square, they are the better for stowage, and equally effective for the preservation of what is put into them; but whatever may be the shape, let them be made of oak, whether they are intended for water, flour, butcher-meat, or fish. Ash, elm, or beach, when made into casks, though ever so firmly jointed, admits the air like a spunge; consequently whatever is put into them cannot be preserved for any time. How often do we see spoiled casks of butter, meat, and herrings,* for which no reason can be assigned, but that of being put into improper casks, made of softer kinds of wood, merely for the sake of cheapness.

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* Some time ago I got into company with a cooper and fish-curer. "Pray, Sir," said I, "Can you give a reason why our herrings now are so bad in quality, from what they were in former years?" "The reason," answered he, "is obvious, they are as well cured as ever; but instead

That economy, I presume, is rather of a dubious nature, that would save five pounds upon a parcel of casks, with the moral certainty of spoiling £500 worth of provisions, and the probability of killing as many men; but how is the evil to be got rid of? Only by abolishing that encouragement to speculative fraud that is held out to the avaricious, and the unprincipled dealer in contract work. Throw the trade open to all, and when government stores is to be purchased, let the quality of the goods be looked to, and not the price of them,—the cheapest estimate is generally the dearest at the long-run.

As it is almost impossible to prevent the accumulation of moisture on board of ship, it might be of service to have the roof of the store-rooms covered with lead, which would draw any dampness to it, from whence it might be carried off by gutters properly placed for that purpose. This is merely an opinion; lead is often used on land for

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of putting them into oak casks, we have substituted in their stead, casks made from a lighter wood, which both admits air, and allows the finest of the brine to escape; consequently the fish are spoiled before they are six months cured; for their preservation, after being well cured, depends upon the first brine being kept about them with the exclusion of the air." "Your statement, Sir," I answered, "I know, by experience, is correct." But why have you gentlefolks discarded the oak casks, is it for the sake of cheapness? I grant that softer wood will be a cheaper article; but have you not a bounty of four shillings on every barrel. Surely this sum might go towards the purchase of casks fitted for your purpose." "What you say, Sir, is very true; we have a bounty, and government did well in bestowing it; *but it is wrong applied,—it should have been given to the taker, not the curer of the fish.* A fish-curer, if he cure three or four thousand barrels, is well paid if he get the half of the bounty as clear profit; but he, whose means are not for such extensive operations, must have more, or he cannot live. Hence it was that these other casks were adopted; they were procured cheaper, they are still so, and are extensively used to the evident disadvantage of every class, and at last will be the ruin of the trade altogether."

the purpose of preventing the continual dropping of damp vaults, which it does; but whether it will have the same effect on board of ship is only supposition; but the experiment might be easily tried, if not tried already, at a very little expense.

After saying so much about the bread allotted to the navy, which I say is far from being good, I may, in passing, take notice of that which our military population have allotted to them, which is little better; with this difference, that none of it is spoiled by keeping. Twenty years ago, the bread which the soldiers received was little inferior to our present standard bread, and in all likelihood it would have still remained so, had it not been their own fault, in refusing to take it, as not being good enough.

A Scottish regiment of militia, (their title I beg leave to conceal,) at one time was quartered in Dunbar, a royal burgh in East-Lothian; they were men, I believe, who had never seen a piece of loaf or wheaten bread until they had got the red coat upon their back; but they were a troublesome set of people, and it passed into a proverb, " that it was easier serving the whole British army than these men, who were never done complaining." Now, it happened, that one of the bakers, who supplied them with bread, had run short of barm, and brewers' yeast was substituted for the baking of about sixty loaves. The bread, when baken, was remarkably sweet and fair, but not so light as that baken with artificial barm; and it behoved our gentlefolks of military renown to return the whole but five loaves. It is true, that in a few hours after, they made application to have the bread again; but, by that time, it was sold to the inhabitants of the place at its full value, so the baker lost nothing; but he very naturally made a complaint to a higher authority, for his bread being returned as not fit for the feeding of pigs; when the best in the town declared that they had never ate the like of it for goodness. The complaint being made, on investigating the subject, it was discovered that the bread was by far too fine; consequently government paid too much money for it, and an alteration was immediatly ordered.

The alteration made rendered the bread cheaper, but not to the soldier, as he still paid his stated price for every loaf, while it was rendered only of half the value as to quality. Formerly the bread was baken from fine flour, with the addition of about ten pecks of second to a sack; but, by the new system, a small portion of the coarse bran was only taken out. The bread was good enough in itself, but the quantity allowed, when of such a quality, was far too little for the support of any man while in health, being only a pound each day.

The military are also supplied by contract, which, in my opinion, should not be the case. Would it not be much better, when circumstances will allow it, to give the soldier money for all? I am well aware that if this was done, he would at least get better provisions. I have known some parties of men take fine bread, and pay the overplus out of their own pockets; these men were always well pleased, and they gained by this practice,—one fine loaf went as far as two of the coarse. This was certainly a loss; but they had themselves to blame for it, and they may, if they please, draw this consolation from it, that if the bread they receive is not so substantial food as might be wished, it is an excellent physic.

CHAPTER II.

Fine and Common Short-Bread,—Buns,—Cakes, &c.

Sale-Biscuits of all kinds, are reckoned unleavened bread; but this opinion is not strictly correct, unless in reference to sea-biscuits, or any of the fine kinds that have neither barm, yeast, eggs, or salts in them; when these are used, the biscuits are light, consequently they cannot with any propriety be called unleavened. The finest biscuits are raised with eggs; but such does not take the public eye, being far too small in size for the money. Those baken with yeast are generally termed common biscuit; but some of them are very fine, and should be preferred by those who have any regard for their health. Salt makes fine and good looking biscuits; but they act as a physic to many constitutions.

Salts, such as used for the baking of biscuit, is a well known substance to almost every one, though not under the same name; their general title is volitile salts, and some of our country old-maids are conversant with them under the name of scented or smelling salts; but the chemical appellation is the carbonate of ammonia,—a substance which is extremely abundant in certain places, and is easily detected by the sonell; but I must say no more upon this subject, as some of our fine ladies perhaps may be deprived of a cure, when troubled with that fashionable distemper—the vapours.

But seriously, it is a valuable article were its properties known; a small quantity of it, dissolved in the same weight of brandy, will seldom fail to remove that tormenting pain the toothach, by simply washing the teeth with it, and it is also good for the removing of the head-ach by smelling. As it is a strong purgative, parents and others should be cautious how they give children under their charge, biscuits or cakes baken with this stuff,—the quantity indeed which may be in one biscuit, is but small originally, and a great part of it is dissipated in the baking process, and one now and then will do no harm; but when they are made the daily food of infants, disease is sure to follow.

I have generally observed, that biscuits, baken with salts, are given to children that are sickly. Now, this is exactly the reverse of what should be,—such kind of food is more likely to aid a distemper than to remove it. The best bread for children, or adults either, that are sickly, is well fermented loaf bread, or, instead thereof, sea-bread; cheese-biscuit are also good for the purpose,—the receipt for which is as follows:—

1.—*Cheese Biscuit.*

Take any quantity of sweet milk, make it warm, and set the spunge with it; after the spunge is dropt, make it into a very stiff dough, give it a good proof, then work the biscuit down to any size, stab them, put them into a moderate oven directly, and bake them well.

2.—*Common Hard Biscuit.*

Take any quantity of roll dough, work it stiff with flour, and very smooth; break them off according to the price of bread, two a-penny, roll them out, stab them, and put them into a moderate oven as soon as wrought down, and bake them well.

3.—*Fine Hard Biscuit.*

Take nine pounds of dough, one pound of butter, and as much flour as will make a stiff dough; work them down, stab and bake them in the same manner as the common hard biscuits.

4.—*Butter Biscuit.*

Take nine pounds of light roll dough, two pounds of melted butter, and two pounds of flour, mix all together, with a few carroway seeds, if to taste, and give the dough a good proof. Some bakers put their biscuits upon tins, others not, just as it takes their own fancy; when wrought down, stab them, and put them into boards to prove; give them a good proof, and, before putting them into the oven, give each biscuit a stab or two with a small wooden pin, to prevent blistering on the top. These biscuits take a moderate oven, they are generally put into it immediately after the batch is drawn. A very good biscuit is made with the same dough, by adding a-pound of raw sugar, and half a-pound of currants, to twelve pounds of dough; but this kind must be baken on tins. Each kind are made a halfpenny, or a penny a-piece,—the weight according to the price of flour and butter.

5.—*Wine Biscuit.*

Rub in one pound and a-half of butter among eight pounds of flour, take as much water (milk is better,) as will make a stiff dough, work it very smooth, then break it out, two a-penny, work them down, and put them into the oven as quick as possible, let the oven be middling hot.

6.—*Sweet Wine Biscuit.*

Take three pounds of light dough, six pounds of flour, one pound and a-half of butter, one pound of loaf sugar; rub the butter down among the flour, and reduce the sugar to a fine powder, then take as much water as will make a stiff dough, make it smooth, and work them down the same as the common wine biscuit, bake them on tins in a moderate oven; both these kinds of biscuit require a very thick teethed stabber, it improves their appearance greatly.

7.—*Dollar Biscuit.*

Rub down twelve ounces of butter among eight pounds of flour, then add to it one pound of raw sugar, (loaf if preferred,) make a stiff dough, and work it smooth. These biscuits are four a-penny, they are not rolled, but stampt on the top with a circular wooden print; bake them on tins in a moderate oven, they must be perfectly dried.

8.—*Butter Cups.*

To seven pounds of flour, add two pounds of light dough, and rub it into two pounds of butter, make a stiff smooth dough, and work them down the same as dollar biscuit, making the impression deeper; put them on tins, and wash them with a little milk, give them a moderate oven, and bake them well.

9.—*Balls and Fingers.*

Take one pound of butter, three quarters of a-pound of loaf sugar, mix these among as much flour as a quart of milk will make into a stiff dough, work it well, then cut it out into small pieces, roll each piece upon the table, cut them off the size and form of a finger; then take the remainder of the dough, give it another work, break it out into the size wanted, and chaff them round, in the form of a ball; put balls and fingers into separate tins, wash them over with a little milk and eggs; bake them in a moderate oven; these biscuits are four a-penny. The dough must be well wrought, else the fingers will not roll out.

10.—*Coffee Cakes.*

Take two pounds of sugar, one pound of butter; rub the butter among some flour, and reduce into powder two ounces of volatile salts, and take as much flour as a quart of milk will make into a weak dough; roll it out into sheets, cut the biscuits or cakes with a plain tin cutter, the size of six a-penny; put them on tins well buttered, wash them with beat eggs and milk, give them a moderate oven.

11.—*Seed Biscuit.*

Three pounds of sugar, one pound and a-half of butter, three ounces of salts, with a few carroway seeds, take as much flour as a quart of water will make into a middling stiff dough; work the dough well, then roll it out into thin sheets, and prickle each sheet well, leaving no vacant place; cut the biscuit with a crumpt cutter, six a-penny, put them on tins, wash them with milk and eggs; these biscuits require a very hot oven. The dough is very refractory to work,—the baker must have both strength and agility when baking these biscuits; he may depend upon it, that if he goes to sleep, his dough will go to sleep also.

12.—*Bath Biscuit.*

Pound three pounds of loaf sugar, and two ounces and a-half of salts, then rub in one pound and a-half of butter among as much flour as a quart of water will make into a middling dough; roll the dough into sheets, cut the biscuit with a crumpt cutter, two a penny, put them upon buttered tins, wash them with eggs and milk, and bake them in a moderate oven. Common hermit biscuit may be baken with the same dough, by strewing some loaf-sugar, coarsely pounded, upon the top, after they are washed; but these are cut with a smaller cutter. Some bakers dry their sugar in the oven before putting it on, I think it answers as well not to do so.

13.—*Fine Hermit Biscuit.*

Take one dozen, or one pound and a-half of eggs, beat them well up, pound very fine three pounds of loaf-sugar, then take one pound and a-half of sweet butter, work the butter in a dish to a cream, then put in the sugar, and give it another work, until it feels smooth in the hand; when smooth, add the eggs, and beat the whole together until it grow stiff; then take one pound of sweet almonds, beat them well with the roller, (it is better in a morter,) a pound of orange-peel, minced as small as possible, mix these two together, then divide them into equal parts, the one part put among the butter, eggs, and sugar, with a few carroway seeds, and a little volatile salts, give all a good beat, then turn it out upon the table among some flour, and make a weak dough, roll it out in sheets, and cut it with a plain cutter, wash the biscuit over with a little milk, then take a pound of loaf-sugar pounded, and mix the other half of the orange-peel and almonds; strew this mixture upon the biscuit, put them on tins well buttered, and bake them in a moderate oven; when the sugar begins to colour, they are done; let them lie upon the tins until cold.

There may be other receipts for this biscuit, but I never heard of them: this way makes them very fine, they are generally sold one a-penny.

14.—*York Biscuit.*

Take one pound and a-quarter of loaf-sugar, one pound of butter, one ounce and a-half of salts, with as much flour as a quart of milk will make into a stiff dough; make the dough remarkably smooth, then roll it out into sheets about the eight of an inch thick, cut off the edge next you, then take a square wooden stamp about an inch and a-quarter long, and an inch broad, make an impression on the dough with it, and cut it off, leaving a border clear of the print all round every biscuit; put each singly on a tin well buttered, very close, but so as not to touch one another, wash them over with milk and eggs, bake them in a sharp oven; they should follow seed biscuits. An excellent York biscuit may be made from Bath biscuit dough, by making it a little stiffer.

15.—*Brighton Biscuit, first kind.*

Take four pounds of raw sugar, and four ounces of salts, with one quart of water, mix them all together in an earthen-ware dish, with a little flour; let this stand twenty-four hours, then add three quarters of a-pound of butter, and make a very weak dough, roll it out, and cut the biscuit with a plain cutter, put them on tins well buttered, giving them room to spread, wash them with a little milk, and give them a moderate oven. These biscuits are very troublesome to bake; they should not be baken near the coast, but for immediate use, as the sea air spoils them in twenty-four hours.

16.—*Brighton Biscuit, second kind.*

Take four pounds of flour, rub into it one pound of butter, and beat up into a high froth four eggs, but, if they are small, six should be taken; beat into powder one ounce and a-half of salts, then take one pound and a-half of loaf-sugar, with as much water as will make a smooth dough, and some carroway seeds, roll it out in sheets, prickle each sheet the same as seed biscuit, and cut them with a plain cutter, rather larger than the Bath biscuit; put them on tins, wash them with milk and eggs, and bake them in a moderate oven, and wash them again when baken.

17.—*Cinnamon Biscuit.*

The mixture for these are the same as the preceding, keeping out the carroway seeds, and adding half a-pound more of butter, and half an ounce of ground cinnamon; cut them with a crumpt cutter, the size of Brighton's, put them on tins, and bake them without washing.

18.—*Derby Cakes.*

The same mixture as Brighton's, with the addition of half a-pound of currants, cut them either plain or crumpt round the edges, put them on tins, wash them, bake them in a moderate oven, and wash them again when baken.

All biscuits that contain butter and sugar, should be baked on tins, and every tin well buttered, and sprinkled with a little cold water before the biscuit is put on. The water is meant to keep the biscuit firm on the tin while washing; but it serves another purpose, namely, it both keeps the biscuit clean, and the fire from taking too great an impression on the sole.

Many bakers use raw sugar for their fine biscuit. I, for my part, prefer loaf-sugar, it is as cheap at the last, and makes a better biscuit; three pounds of loaf-sugar is equal to four of raw sugar. All the salts that are used for raising biscuit, is volatile salts; they must be reduced into a very fine powder when they are to be used; when suffered to remain exposed to the air, they soon lose their strength, they will lose it also if they are steeped among water.

All these fine biscuits, with the exception of cinnamon, must be washed with eggs and milk; the eggs is first well beat, then the milk mixed amongst it,—the less washing put on the biscuits the better; but it must be even laid on, wetting the whole surface; too much washing is apt to make them blister.

19.—*Rusks, Tops and Bottoms.*

Take two pounds of light dough, and work it into a quart of sweet milk warmed, with a little barm, cover it up, and let it stand to work as a spunge; when ripe, take one pound of butter melted, one pound and a-half of loaf-sugar, and a little salt, mix these into a spunge; let it stand until it rise up again, and make it into a light dough, give it a good proof in the dough; when fully proved, break it out into pieces about an ounce weight, chaff them, or roll them under hand, and put them on tins well buttered, in rows parallel to one another, each scarcely touching its fellow; lay the tins up in boxes, and give them a good proof, and bake them in a moderate oven; when half baken, draw them out, and wash them over with water, do the same when fully baked.

When baken, they go under the name of Dutch loaves, but when tops and bottoms are to be made, every loaf is cut from another, and each one divided into two; they are then placed on a tin, put into a hot oven, and when browned, they are drawn out, turned, and the operation repeated. Rusks are made with the same dough, only it is made into long rolls, put upon tins, and pressed down with the hand, higher in the middle than the edges; when cold, cut into thin slices, and dried the same way as the tops and bottoms. Rusks, &c. will keep for a considerable time, and is greatly used in some places for children's meat; there is no doubt but they are superior to Indian arrow-root, but good oatmeal, made into porridge, with plenty of sweet-milk, is superior to them both.

20.—*A Pound-Cake.*

Take one pound of sweet-butter, work it into a cream, then put in one pound of loaf-sugar, and give it another beat; then beat up one pound of eggs, and beat all together about half-an-hour, or until the butter feels very smooth; have some small patty pans, of the shape of hearts, fill them three parts full, and strew a few currants on the top, fire them in a moderate oven; half-an-ounce of volatile salts may be added if required, but if the eggs are good and well beat, the salts will not be needed.

21.—*Mixed Drops, or Biscuits.*

Take one dozen, or a pound and a half of eggs, one pound and a-half of sweet-butter, and three pounds of loaf-sugar, order these in the same way as the pound-cake, then make a very weak dough with fine flour. Divide the whole into four parts, to one part put half a-pound of orange-peel, minced as small as possible; to the second half-part, half-a-pound of sweet-almonds, but very small; to another part, half-a-pound of currants, well cleaned; and to the last part, six-penny worth of the oil of peppermint, with four ounce of bitter-almonds, well beat; make each separately up into small drops about the size of a half-penny, put them upon paper, and strew some pounded loaf-sugar over them, and bake them in a moderate oven; let them cool before they are taken off the paper. These biscuits will keep for a long time when preserved dry: they must, however, be baken with the best butter, if sweet-butter cannot be got, the salt must be extraced from what is used.

22.—*Tea Bread.*

Take three pounds of light dough, mix amongst it, with a little flour, a half-pound of melted butter, then divide it into two equal parts; to the one-half add one quarter of a-pound of currants, and six ounces of raw-sugar, with a few carroway-seeds; to the other half, put in six ounces of sugar, a penny-worth of ground cinnamon, and a few seeds; lay them on a warm place, and give them a good proof. When ready, weigh them off (one penny the piece), and make them up (the currant ones I mean) of any shape, but that with the cinnamon in it are made into biscuit, and stabbed with a small wire prickle. Put them on tins, giving them plenty of room, and wash them over with a little warm water,—put them into boards to get a good proof,—when half baken draw them out of the oven and glaze them, put them into the oven again, until they are baken. The glazing is made in the following manner:—Take an egg, or more if required, give it a good beat, then put about two ounces of sugar in it, and beat the whole until it is very light, wash the tea-bread with it, and when this turns brown the bread is baken. This tea-bread is only for present use, but if it should be a day old, hold it to the fire until it is heated throughout, and it will eat very well, mostly as good as the day it was baken; but this cannot be done a second time.

23.—*Short-bread, common.*

Melt four pounds of butter, and make a dough with eight pounds of flour and one pound of sugar; the butter will take up all the flour, except the quantity required to work it down. Divide the dough into eight pieces, roll each of them out square, prickle them on the top, and raise up the edges with the finger and thumb, put them on tins or paper, and bake them in a moderate oven.

24.—*Short-bread, fine.*

Take the same quantity of flour and butter, one pound and a-half of loaf-sugar, half a-pound of orange-peel, minched, and make dough. Divide it, as in common bread, into eight parts, roll each out, and after the cake is prickled, strew over the top of each about an ounce of carroway-comfits, giving them a gentle pressure into the dough; put into the vacant spaces small chips of the orange peel, which must be reserved for this purpose. This makes very fine short-bread; it is nothing worse of having a little grated nutmeg in it.

There is often a poorer kind of short-bread baken, but that is merely the same as butter biscuits; this poor bread is apparently the cheapest, but those who eat it will find it the dearest; to this assertion I do not expect implicit credit, I never yet could convince any person that a shilling's worth of fine short-bread will serve as many people as eighteen-pence worth of poor bread.

25.—*A fine peck Bun.*

Mix two pounds of butter among twelve pounds of dough, with a few carroway-seeds, and lay it aside until the following materials are prepared:—Clean ten pounds of currants, pick and clean eight pounds of raisins, blanch and cut through the middle one pound and a-half of sweet almonds, and cut one pound of orange-peel very small; to this add half a-pound of Jamaica pepper, four ounces of ground ginger, two ounces of ground cinnamon, and six ounces of carroway-seeds; mix all these together, then take nine pounds of the dough, and work all the fruit well into it. When wrought enough, which sometimes will be troublesome work, make the whole into a round lump, then take the other three pounds of dough, chaff it, and roll it out, then put the bun in the middle of it, and raise the edges up all round, then turn it upside down, and reduce the bun to the proper thickness, making it a little hollow in the middle; prickle it all over the top, and, with a sharp knife, cut it round the edges, not deep, but piercing the skin, give it a little proof, and when half baked wash it with a little milk, the same as when baken.

This receipt makes a very fine bun, but the richness of them can be varied at pleasure, by either putting in less fruit, or keeping out the almonds and peel, but I think there is little profit in making a poor bun. When poor, they take a deal of baking, a rich one very little, unless it is intended to be spoiled; an hour and a quarter in a moderate oven will bake a rich peck-bun, but one with only twelve pounds of fruit in it will take two hours with the same heat.

26.—*A Seed-cake.*

Take one quartern of light dough, one pound of butter, one pound of sugar, of raisins and currants a pound each, half a pound of orange-peel, the yolks of six eggs, and a few carroway-seeds, mix all together, and put the cake into a hoop, give it a good proof before putting it into the oven, pass a small pin three or four times through it; the oven must not be too warm. The hoop should be of such a size that the cake may not be above two inches in thickness when baken. When drawn, pass a knife, or small piece of wood, down the middle, if it come up clean the cake is baken, if not, give it a little more of the oven.

27.—*Carroway Biscuit.*

Take three pounds of flour, and one pound of butter, half a-pound of sugar, and six ounces of dough, with as much water as will make a stiff dough, work it smooth, weigh it off at two a-penny, chaff and roll them out, prickle them well, and put a few carroway-comfits on the top of each, giving them a gentle press to make them stick, fire them on tins after the batch is drawn.

28.—*Carroway Biscuit, second kind.*

Take two pounds of brown sugar, a pound of butter, and two ounces of salts, with as much flour as will make a light dough, with an English pint of water. Roll the dough out in sheets, cut it with a crumpt cutter, put them on well buttered tins, wash them with milk and eggs, put a few carroway-comfits on the top of each; they require no pressing down, as they get deep enough without it in the oven; the oven must be pretty quick.

29.—*Yarmouth Biscuits.*

Clean six ounces of currants, then take half-a-pound of loaf-sugar, half-a-pound of sweet-butter, mix these three together, then work in as much flour as will make a light dough, which will be rather more than twelve ounces; roll the dough out in cakes to the thickness of an eighth part of an inch, and cut them out to any pattern; bake them in a quick oven, with two or three sheets of paper beneath them, not on tins, draw them out of the oven whenever they get brown on the top.

30.—*Anise-seed Biscuit.*

Take six pounds of roll dough, twelve ounces of butter, half a-pound of sugar, and one ounce of anise-seeds, with a little of any spice that is most agreeable; mix the whole together into a smooth dough, give it a proof, then work them down as clear of flour as possible, and put them upon clean tins, then give them a proof before putting them into the oven, let the oven be moderately hot. These biscuits are not stabbed; but, before putting them into the oven, give each a stab or two with a small wooden pin, to prevent them blistering; bake them lightly, in the nature of tea-bread. These biscuits are only for immediate use; but they may be made for keeping, by stabbing them with a wine biscuit stabber, and baking them directly after being wrought down.

31.—*Judges' Biscuit.*

Take six eggs, and break them into a copper bason, work them until they grow stiff, then put in one pound of loaf-sugar, sifted through a fine sieve, and work them well again, then add half a-pound of fine flour, with a few carroway seeds, then beat the whole up with a wooden spoon; drop them upon paper about the size of a crown piece, rather thick in the middle, put the paper upon tins, sift some pounded loaf-sugar over the biscuit, and bake them in a quick oven, take them off the papers while hot.

32.—*King's Biscuit.*

Take half a-pound of sweet butter, work it well in a bason with the hand or a wooden spoon, until it comes to the consistence of a thick cream; but do not let it oil; then take and break six eggs, work them well, when the eggs are well beat, add half a-pound of loaf-sugar, then mix the eggs, the butter, and the sugar together, giving the whole a good beat, then put in six ounces of flour, and when properly mixed, drop the paste upon paper, making each biscuit the size of a shilling, put the papers upon tins, bake them in a quick oven, and cut the biscuit off the paper while hot.

33.—*Nut Biscuit.*

Break some Barcelona nuts in a mortar, pick out the shells, then pound the kernel very fine, adding by degrees the white of eggs previously well beat up, taking care that the paste does not oil; when well beat, put in as much double refined sugar as will make a stiff paste, beat the whole for a considerable time, that is, until all is completly blended together, then drop small pieces upon common paper, bake them in a moderate oven to a fine brown, and let them remain on the paper until they are cold.

34.—*Almond Biscuit.*

Blanch a pound of almonds, and beat them up in a mortar with the white of an egg, until they feel smooth betwixt the fingers, then take two pounds of refined loaf-sugar, and two hard biscuit, reduce both into a powder, and sift them through a fine sieve; beat up the white of thirteen eggs into a froth, then put in the almonds, and beat them until they are very light, then add the sugar by degrees; when the sugar is well incorporated with the other materials, mix among the biscuit-powder half a-pound of fine flour, then add this to the other composition, mixing the whole well together, then drop the paste upon paper an oval shape, and sift some pounded loaf-sugar on them, bake them in a moderate oven.

35.—*Pound Biscuit.*

Beat up to a high froth one pound of eggs, then add one pound of double refined sugar sifted, and beat the two together until the paste is stiff; then add one pound of fine flour, with a few carroway seeds, give the whole a good beat, then drop them upon paper, and sift some fine sugar over them, bake them in a moderate oven.

36.—*Orange-Heart Biscuit.*

Take three quarters of a-pound of loaf-sugar, and the yolks of thirty eggs, mix them well together, then take seven preserved orange-peels, and pound them in a mortar to a paste, take out the paste; and pound a handful of sweet, and half the quantity of bitter almonds, with a little orange-flower water, or the white of an egg; then take other four eggs, yolks and whites, and mix the whole together, beating the paste lightly with a wooden spoon in each hand until it turns white, and puffs up in blisters, then mix amongst it half a-pound of fine flour; have ready small patty pans in the shape of hearts, butter them well, and fill them about half full, then throw a little powdered sugar over them, bake them in a quick oven, but take care they do not burn; take them out of the tins while hot. These biscuits make a very fine drop biscuit; but there must be two or three sheets of paper put below them.

37.—*Lemon Biscuit.*

Take the white of four eggs, the yolks of ten, and beat them a quarter-of-an-hour, with four table spoonfuls of white wine, then add one pound of loaf-sugar, and beat again for an hour, then put in the peel of a lemon grated, and half a-pound of fine flour, and give the whole a good beat; drop the paste in small patty pans, such as are used for baking spunge biscuit, and throw a little sugar over them, lay them by until the oven is cool, then put them in again, and let them stand to dry, until they will snap in breaking.

38.—*Sugar Cakes.*

Take three pounds of fine flour, and two pounds of loaf-sugar, pound the sugar, mix it amongst the flour, and sift it through a fine sieve, then beat up the yolks of four eggs, with a gill of rose water, adding a little mace, musk, and ambergris; when the eggs, &c. are well beat up, take the mixture of flour and sugar and make a dough to roll out in thin sheets; when rolled out, cut them to any pattern, put them on paper, and the paper on tins, bake them in a quick oven, throwing a little sugar over them.

39.—*Spunge Biscuit.*

Cast one pound, or nine eggs, until they are come to a high froth, then put in a pound of beat loaf-sugar, and beat it up with the eggs until it get quite smooth, mix in three quarters of a-pound of fine flour as quick as possible, butter the frame well, and fill them rather more than half full, strew a little pounded loaf-sugar on the top, and bake them in a moderate oven; a little grate lemon may be added.

40.—*Sugar Biscuit.*

Beat up a pound of eggs very light, then put in one pound of loaf-sugar, beat and sifted, beat all until smooth, then put in one pound of dried fine flour, and a few carroway-seeds, drop them on paper, and glaze them with sugar on the top, give them rather a cold oven.

41.—*Savoy Biscuit.*

Cast six eggs very light, then add one pound of loaf sugar, beat and sifted, beat this mixture until it is white and thick, then mix in quickly twelve ounces of flour; drop them oval upon paper, and glaze them with sugar, bake them in a cool oven.

42—*Ratifia Biscuit, or Drops.*

Blanch half a-pound of sweet, and half a-pound of bitter almonds, then beat them in a marble mortar, with the white of an egg; then beat by themselves the white of three eggs, then mix the eggs amongst the almonds, and beat them well; put in by degrees a pound of loaf-sugar sifted, mix all well together, then drop them on white paper, about the size of a sixpence, bake them in a cool oven.

43.—*A Diet Loaf.*

Beat and sift a pound of loaf-sugar, then cast a pound of eggs until they are very light, mix the sugar into it by degrees, with a little ginger, and a few carroway-seeds, beat it for half-an-hour, then put in three quarters of a-pound of flour, and mix it well; put it into a hoop well buttered, strew a little sugar on the top, and bake it in the oven.

44.—*A Plumb Cake.*

Take one pound and a-half of eggs, beat them until they are light and thick, then put in by degrees half a-pound of sifted loaf-sugar, keep beating until it is very light; take half a-pound of raisins, stone and mince them, clean half a-pound of currants, blanch and cut half a-pound of almonds, and cut into small chips, of orange and citron peel, half a-pound each; cast twelve ounces of sweet butter into a cream, and mix all these together, season it with four ounces of cinnamon, half-an-ounce of ground ginger, and a grated nutmeg; when well mixed, butter a hoop, and put the cake into it, and strew four ounces of carroway comfits on it, bake it in a quick oven; when formed, put a piece of paper on the top to keep the fire off it.

45.—*Cottage Buns.*

Beat eight eggs, then add their weight of loaf-sugar, and the same of flour, with a few carroway seeds; when well beat, butter some small tea-cups, and put a few currants into them; then fill them with the paste about half full, dust the top with loaf-sugar.

46.—*Fine Lozenges.*

Take one ounce and a-half of isinglass, the same of gum dragon, dissolve them into one half-mutchkin of cold water, and strain it through a fine cloth; then add two pounds of double refined sugar, beat and sifted, and ten drops of the oil of peppermint, mix the whole until it get very smooth; then roll them out, and cut them, and lay them on a tin to dry.

Common lozenges are made in the same way, by adding to the above four ounces of the best white starch, and one half ounce of the plaster-of-Paris refined.

47.—*Barley Sugar.*

Take four pounds of loaf-sugar, one pint of water, work two eggs to a froth, and add them to the sugar and water, boil them over a clear slow fire, take off the scum as it arises; when nearly done, add one table spoonful of vinegar; it is ready when it comes freely off the shank of a pipe when put into cold water,—the water must be cold, or it will deceive you when ready; throw it on a slab-stone that has been rubbed over with butter or spermaceti, draw it out while warm, and cut it off to the size required.

48.—*Spunge Tablet.*

Boil four pounds of loaf-sugar, with one mutchkin of water, over a slow fire, until it is very high; take it off, and add to it one ounce and a-half of volatile salts, beat into a powder, stir it round, and pour it out into small edged tins well buttered, let it stand till cold.

49.—*Sugar Puffs.*

Beat the white of an egg to a high froth, add to it a little of the essence of lemon; then mix into it as much double refined sugar as will make it a stiff smooth paste, make the paste up into little round pieces about the size of a sixpence, and a quarter of an inch high, put them on tins, and bake them in a cold oven; when they get brown, they are ready.

50.—*To preserve Gooseberries.*

Take some wide mouthed bottles, fill them full of berries before they begin to grow ripe; let the stalk and top be taken off them, put the bottles into an oven for about fifteen minutes; when old, tie a cloth round the neck of each, and turn them upside down into a rack, that all the liquor may be drawn off them; then take one of the bottles and fill up the rest with the berries that is in it, pour a little melted suet into each bottle, then put in the corks, wax the corks to exclude the air, and lay them in a cool place, but preserve them from dampness.

51.—*Another way of preserving Gooseberries.*

Pick and clean the gooseberries, put them into the oven in a covered dish, with a pound of raw sugar to every pint of fruit, Scots measure, let them stand in the oven for about half-an-hour; then take them out, and drain all the syrup from them; when cold, re-pack them into the dish again, rejecting those that are broken; then take the juice, put a little more sugar to it, put it on the fire, let it come a-boil, then run it through a sieve, and when cold, pour it upon the berries; then cover them close up from the air, take care that all the berries are covered with the juice, and examine them frequently, as they are very apt to get musty in damp weather; to prevent which, take the juice off, and give it another boil, and return it, as in the first instance, when cool.

CHAPTER III.

Pastry,—Various Receipts,—Gingerbread, fine and common,—Wines,—Jams,—Preserves, &c.

Of pastry little may be said, as every one can make paste, if we are to take their own word for it, without looking at the work which is put through their hands; it is, however, notwithstanding so much knowledge about the matter, a very difficult thing to make proper paste as it should be done. Almost every one has a way of his own; but indeed the whole resolves itself into this, namely, good materials and quick work; a lazy worker will never make good paste.

Of the various operations in the art of baking, I never saw more mistakes than in the pastry department, and indeed it cannot be otherwise; pastry can only be learned by practice, and many never saw paste made in their life before they began making it themselves, taking their rule from receipt books, which, in this particular, is but a poor guide; there are also many who make their experience of little avail by their economy, thinking that they save a great deal by making their paste poor, whereas it is quite the reverse. Whatever is put into a dish that is covered with poor paste, is stewed and not baken. Now every one understands this, that there is a great difference betwixt these ways of cooking; stewing a pye is only spoiling it, and it must be stewed when there is a poor paste put upon it; it would answer the purpose equally as well, to put a cast metal cover upon it.

Good paste depends greatly upon the butter being fit for the purpose, the richest is not often the best, which seems to be something paradoxical; but it is the case, whatever may be the reason of it. That butter, with which I never failed to have good and light paste, is that which is known under the name of Peterhead. This butter is far inferior in richness to some that is brought from Holland, Germany, and other places; but it is superior to any of them for making paste. There is a great deal of butter brought from Shetland, which brings a very inferior price in the market; but is in reality the richest butter cured in Britain. I say cured; but, in fact, it is neither cured nor cleaned at all. How they manage it I know not; but this I know, that if it was managed as it should be, it would be equal in quality to the produce of the best dairies in Holland; but when people get handfuls of salt, wooden spoons, combs, and old wigs into a cask of butter, with perhaps a sheep's tail, or a lump of old iron, it is no wonder that the second cask is never bought. A little attention to cleanliness would make the Shetland butter the best table butter in the three kingdoms; but such as it is at present, it is only useful for smearing sheep.

Butter for paste must be firm, clean, free of water and milk, and lumps of salt, which are good qualities that nine casks out of ten are deficient of, both home-made and foreign. I suppose it will be needless to observe, that paste must be handled quickly, wrought cool, and put into the oven directly after being wrought down.

Of pastes, there are various kinds, some good, and some bad; all depends upon the richness of it, and the manner it is baken. Some bakers can cover a plate very cheap; they have only to take two-pence worth of dough, either roll or batch, and two or three-pence worth of butter; put the butter amongst the dough, roll it out two or three times, and put it on the dish; this is a cheap way of making paste; but I may observe, that those bakers who make it in this manner know but little about proper paste, and could not make a piece of rich dough to rise light at all.

There are others again who use a great quantity of butter; but, in fact, do not make good paste either,—the manner is, to take a third part of the butter, and rub it finely amongst the flour, then make a light pliant dough, and when made smooth, roll it out thin, putting a fifth part of the butter all over it, rolling it up and out again, repeat this five times. This manner of making paste is not allied to economy; true indeed, if the butter is good it will fleak well, but it will be hard, and a third part of the butter will be lost, as it will run out of the dough in the baking.

If fine paste is wished for, the following receipt may be relied on as a good one: Take one pound of fine flour, two ounces of potato-starch, and mix these well together; then take fourteen ounces of butter, beat the whole of it in small pieces, and mix it lightly amongst the flour; then take the rolling-pin, and pass it over both flour and butter to flatten it; next take the yolk of two eggs, cast them well, then add as much churned-milk as will be sufficient to make a pliant dough, cast both eggs and milk together, for if they are not well incorporated, the paste will be spoted; make the dough, roll it out three times, and then cut it to the pattern wished for.

This may be reckoned an extravagant receipt by many but no poorer should ever be made for veil, eel, or fruit pies.

2.—*An Eel Pye.*

Take any quantity of eels, clean them, skin them, cut their heads off, and cut them into pieces of about two inches in length, season them well with salt and pepper, (some prefer mixed spices, but plain seasoning is as good,) put them into a hollow dish after they are seasoned, with a little butter about them, and, if agreeable, the juice of a lemon; put also a little water in, but just as much as keeps the dish; then cover it with paste, making the paste thin, as eels require but little baking.

3.—*A Gooseberry Pye.*

Take one pint (Scots measure,) of gooseberries, pick them clean, put them into a dish, put one pound of raw sugar among them, with a little cinnamon, and about one gill of water, make a border of paste to go half way down the dish; put the berries into it, cover it, then ornament according to taste.

4.—*Puffs.*

Roll out the paste, cut it into pieces of any size, then take the pulp of baking apples, mixed with a little sugar, spread a little of it upon one-half of the paste, and bring the other half over it. Jam and jellies, of any other kind of fruit, may be used in the same way.

5.—*Sausage Rolls.*

Take about two ounces of paste, roll it out square, then take a piece of sausage, either beef, pork, or mixed, about two inches long; put the sausage on the paste, roll it up, put them on tins, with the closed side undermost.

6.—*Jam Tart.*

Roll out the paste very thin, take an ashet about an inch deep, put the paste all over it; then fill the dish with jam; roll out the paste that is left, a little thiner, cut it in long narrow stripes with a runner, and put them cross ways upon the jam, about a quarter-of-an-inch separate from each other; then put a border round the edge of the dish about an inch wide, then ornament according to taste.

7.—*Apple Pye.*

Take any quantity of apples, according to the size of the dish, pare them, and cut them into small stripes, keeping out the seeds and core; to every pound of apples, take four ounces of sugar, and a little ground cinnamon, pack the whole neatly into the dish as close as possible; they cannot be too closely packed, as apples fall greatly in baking; when the dish is full, roll out the paste rather thick, cover the dish, and ornament it as fancy directs; there should always be a little water put in the dish.

All these dishes should be covered with the finest paste, bake it in a solid, but not a quick oven, as too rapid a heat spoils the appearance of the paste that is rich; when these dishes are covered, take the white of the eggs that is left from making the dough; cast them lightly with a little loaf-sugar, and wash the paste over with it; but observe, that neither fish nor meat pies are ever glazed.

The paste mentioned above, is for the finest, or what is termed fruit pies; but when beef or mutton pies are to be made, eight ounces of butter to sixteen ounces of flour will do very well; also omitting both the eggs and the starch.

When a dish of any kind is to be covered, there must always be a border put round the edge of the dish before the cover is put on; to many this may seem a useless advice. I grant to a baker it is, but not to every other person, which many bakers know by experience. Hundreds of times have I seen covered dishes, come out of the hands of professed cooks, thiner round the edge than in the centre of the dish; of course the edge of the paste was burnt black, while the rest was barely baken, and this mischief is always laid to the baker's charge, as our learned cooks, and those who make their own paste, are by far too perfect to make any mistakes.

I might here have given some receipts for the covering of beef-steak, and mutton-chop pies; but as this is a piece of cookery known to almost every person, it might be reckoned only a waste of time to do so. I may observe, however, that beef-steaks and mutton-chops, when intended for pies, should always be well beat with the rolling pin, and a little flour strewed over each piece. Those who can afford the expense, may put in the dish, to every six pounds of meat a mutchkin (an English pint,) of gravy drawn from roasted veal, well seasoned with celery and fried onions: this will give beef or mutton as good a relish as the most expensive sauce that is yet invented.

8.—*Gingerbread.*

In giving a receipt for gingerbread I am fairly bewildered,—the receipts being so numerous, and every one being so much better than another, that it becomes a matter of difficulty to make a selection. I shall therefore content myself with one, I do not say that it is the best, perhaps it is not such a profitable one as some others; but, if the directions are followed, good bread may be expected.

Take half a hundred weight of molasses, put one-half of it upon the fire, and let it boil for a few minutes; then empty it out of the pan, and put in its place one gallon of water, and one pound of alum, put this on the fire, and let it boil until it is thoroughly melted; when the alum is melted, pour it amongst the boiled molasses, and put in eight pounds of butter, then stir in flour sufficient to make a stiff dough, and lay it aside to cool; when this dough is cold, take the other half of the molasses, with two pound of pearl ashes dissolved in cold water, make a weak dough, then mix the two together, if the ashes have been good, the dough is ready for baking; but it is nothing the worse of standing a few weeks, or even months if intended for fine bread.

9.—*Honey Cakes.*

Take any part of the dough thus mixed, roll it out into thin sheets, prickle it well, then cut it out, four a-penny, with a plain cutter, put them upon well buttered tins, wash them with sweet milk, and bake them in a quick oven; common snaps and hearts are made of the same dough, with this difference, that the cutters are less.

10.—*Plain Bread.*

Take any quantity of the same dough, put some carroway-seeds, and a little more butter into it; then mix some more flour in it to make it a middling stiff dough, weigh it off to the size required,—penny, twopenny, and threepenny,—have prints ready for each size; as they are printed put them on tins, sweep them clean, and wash them with a little water before putting them into the oven; when baken, wash them over again with a little glue made very thin with clean water.

11.—*Parliament.*

Take the same dough, make it as stiff as it will work, roll it out into thin sheets, put the whole sheet upon a tin, cut off what hangs over the edge; then take the knife, square the sheet off to the size of four a-penny, simply making a mark upon the dough, but not cutting it; wash it over with milk, put it into a moderate oven, and when it has come fairly up, that is, firmed, draw it out of the oven, and, with a sharp knife, cut where the mark was made before quite through; then put it into the oven again until baken.

12.—*Common Nuts.*

Take four pounds of the same dough, one pound of butter, four ounces of carroway-seeds, six ounces of ground ginger, and half an ounce of Cayenne pepper, mix all these together, and add as much flour as will make the dough very stiff, work it very smooth; then break it out into small pieces about one pound weight each, roll out each into long stripes, then cut them off with a sharp knife, put them into a sieve with a little flour about them, give them two or three turns; then place them on the tins, and bake them in a cool oven; do not put too much butter on the tins, as that is apt to make the nuts burn on the bottom.

13.—*Fine Nuts.*

Take four pounds of the same dough, four pounds of brown sugar, three pounds of good butter, half a-pound of carroway seeds, half a-pound of Jamaica pepper, half a-pound of ginger, one pound and a-half of orange-peel minced as small as possible, and one ounce of Cayenne pepper, mix all these together with flour sufficient to make a weak dough, break it out into pieces rather more than half an ounce, butter the tins well, put the nuts upon them, pressing each of them down, with plenty room on the tins, as they spread a great deal, wash them with sweet-milk, and bake them in a hot oven.

14.—*Spunge Bread.*

Take seven pounds of molasses, boil it, then let it stand to cool; then dissolve four ounces of ashes, two ounces of alum, in as little water as possible, mix these among the molasses with flour, then lay them aside for a fortnight, or until the dough gets quite light, then melt two pounds of butter, reduce two pounds of orange-peel into a paste, then take half a pound of corriander seeds, four ounces of carroway seeds, and grind them into a powder. Next take half-a-pound of Jamaica pepper, the same of ginger, with a little Cayenne pepper, mix all these ingredients amongst the dough with a little flour; if required, lay the dough aside until it rises up light again; it is then ready for baking, stir it well to bring it into a body; then take some patty pans of different shapes, butter them well, and fill them rather more than half full, fire them in a solid, but not a quick oven. If the spunge has wrought well, the bread will be remarkably light, and eat well, but the dough must be weak enough to drop from a knife.

When fine bread is to be baken, the following mixture is to be added to the half-hundred weight of molasses above what is given for common bread, namely, eight pounds of orange-peel cut small, two pounds and a half of Jamaica pepper, two pounds of ginger, a pound and a half of carroway seeds, and eight pounds of butter. Mix these amongst the dough, then add as much flour as will make a very stiff dough, work it well, weigh it off to the size required for cakes at sixpence and a shilling; have prints for each; when printed, have edged tins, buttered, put a small slip of wood round the inside of the tin, and butter the wood well, then put in the cakes one by one, buttering the sides of each as they are tinned, wash them with clean water, and when baken, glaze with a thin size. Take care never to glaze any gingerbread with glue until it is thoroughly baked, as glazing it, then putting it into the oven again, makes it rise up in small white blisters.

The above receipt is for bread that will keep for years; there are others indeed that is not so expensive, but the bread baken by them will not keep at all; witness the precious stuff that is brought to our public fairs, some of which is shamefully bad; but these, our country folks, wish to be so, they must have a great bargain, a good one is out of the question, and of course our ginger-bread bakers must accommodate themselves to the opinion of their customers. There is one kind of bread baken to take the attention of children, that is toys, many of which are gilt, with what is supposed to be gold leaf, but in reality is nothing else than copper, which is a rank poison, and this stuff should be prohibited.

Many are of opinion that flour, of any quality, it matters not how indifferent, is good enough for gingerbread; in this, however, as well as in other matters, these people are mistaken; to be good, the bread must be the best of flour. Indeed, when common bread is for immediate use, a little malted flour may be taken, it makes the bread the lighter, but I would advise the person who bakes such, to dispose of it as soon as possible, a damp day will do wonders with it.

There is a possibility of making ginger-bread, without either alum or ashes, but then the price of it would be advanced fifty per cent. and it would neither eat nor look so well. The use of ashes is to raise the bread, the alum cleans it and keeps it to the full stretch after it is baken, without it the bread would fall down when cold, and in some cases be of less bulk than when put into the oven.

The ashes best calculated for baking gingerbread is of a blue cast, and has a sharp burning taste; if they are white, and feel cool upon the tongue, in that case they should be rejected, as they are not capable of making light bread.

15.—*Wrexham Gingerbread.*

Take four pounds of molasses, two pounds of brown sugar, and five pounds of butter, boil the whole till nearly candied, then pour it out, and let it stand till cold; when cold, take four ounces of ginger, one ounce of clove pepper, and six pound of flour, make it into dough, then roll it out into sheets, put it upon tins, and when baken, cut it out into any pattern that is wished for.

16.—*Almond Gingerbread.*

Take a quarter of a-pound of blenched almonds, beat them in a morter very fine, with a little water, in which some gum-arabic has been dissolved; next take a few drops of lemon juice, a little ground cinnamon, and some ginger finely beat, make it sweet with a little sugar, make it smooth, roll it out very thin, cut it out into small square cakes, and dry them before the fire, or in a stove: this is a gingerbread very troublesome to make, and is not calculated for sale.

17.—Wines.—*Ginger-Wine.*

To every gallon of water, put two pounds of loaf-sugar, and one ounce and a-half of grossly pounded ginger, tied into a linen bag; boil these together as long as any scum arises, which must be carefully taken off, put this liquor, when sufficiently boiled, into a tub; and when it is reduced to a milk heat, add the juice and rind of two lemons, and half a Seville orange for each gallon; if ten gallons are made, put in two table spoonfuls of yeast, or a piece of toasted bread. Should this wine be made in cold weather, keep it in a warm place, the better to promote a fermentation, which sometimes does not happen for a day or two; if it ferments freely, turn it up the third day, ginger and rinds together, in a cask just calculated to hold it, keeping out a small portion for the purpose of filling up the cask while it continues to work, which must by no means be filled up with what has run over; when the liquor is done fermenting, run it off to another cask, adding to every four gallons one quart of the best brandy, with half an ounce of isinglass, previously dissolved in some of the wine; in one month it will be fit to drink or bottle. This is a cheap wine, and few families would be without it if they once had an experience of its good qualities.

18.—*Orange Wine.*

To ten gallons of water, put twenty-eight pounds of loaf-sugar, and the white of six eggs, boil them together three quarters of an-hour, and take off the scum as it arises; then pour the liquor into a tub over the peels of fifty Seville oranges; when nearly cold, take three table spoonfuls of yeast or barm spread over a slice of toasted bread, and put it into the liquor; after it has stood two or three days, pour it from the peels into a cask, with a gallon of orange juice, let it remain in the cask until it has done hissing; when the fermentation will have ceased, keep the cask always full with liquor reserved for the purpose; when the fermentation is over, draw off as much of the wine as will admit one quart of brandy for every five gallons of wine. It will be ready to drink from the cask in four or five months; but if put into bottles at that time, and kept four or five years, it will be found equal, if not superior to most of the foreign wines at present sold in Britain. It will take above 120 oranges to produce one gallon of juice.

19.—*Gooseberry Wine.*

To two pints of water (Scots measure,) put three pounds of loaf-sugar, boil it about a quarter of an-hour, take the scum off, and let it stand till almost cold; then take a gallon of gooseberries fully ripe, press them well, and put them among the liquor; let it stand two or three days, and give it a good stir every three or four hours, steep half-an-ounce of isinglass in a bottle of brandy for two days, put the wine through a flannel bag into a cask; then beat the isinglass in a marble mortar, with the white of five eggs, then work them together for half-an-hour, put all these into the cask among the wine, give the whole a good beat, and close up the cask, putting clay over the bung hole, and let it stand for six months; at that time bottle it off, and put into each bottle a piece of loaf-sugar, with two or three raisins of the sun; this wine is equal to Champagne, when it has been kept for two or three years.

20.—*Family Wine.*

Take equal parts of red, white, and black currants, ripe cherries and rasp-berries, pound the cherries in a mortar, stones and all; then press the rest of the fruit, and to every four pounds of fruit put one gallon of water, strain the mass through a cloth, and to every gallon of water put three pounds of raw sugar; let it stand in an open vessel for three days, repeatedly stirring it, and take the scum off as required; at the end of the third day, put the wine into a cask, and let it stand a fortnight to work, then add a ninth part of brandy, and bung the cask close down; let it stand a year, and bottle it off: in two or three years more, this wine becomes very rich and valuable.

21.—*Ginger Beer.*

To every gallon of spring water, add one ounce of sliced ginger, one pound of loaf-sugar, and two ounces of lemon juice, boil this about an hour; then run it through a sieve, and when cooled to seventy degrees, put in half a-pint (English measure,) of good brewers' yeast to every nine gallons of beer, keep it in a temperate situation for two days, during which it may be stirred six or eight times; then put it into a cask, and keep the cask full, with some reserved liquor, that the yeast may flow off at the bung hole; in a fortnight, add half a-pound of isinglass, that has been steeped in beer, to every nine gallons, which will, if the beer has been properly fermented, clear it by ascent. The cask must be kept full, and the rising particles taken off at the bung hole when fine, which should be in twenty-four hours; bottle it off, and cork it well, and in summer it will be ripe, and fit to drink in a fortnight.

22.—*Elder Wine.*

Pick the elder-berries when fully ripe, put them into a stone jar, and set the jar into an oven, or a kettle of boiling water, and let it stand until the jar is hot throughout; then take them out, and strain the berries through a coarse cloth, and put the juice into a clean bottle; to every quart of juice put one pound of fine Lisbon sugar, put it on the fire, boil it, and skim it well; when it is clear and fine, pour it into a jar, and when cold, cask it close up. This wine is not made to keep for any time, it is sometimes drank hot by itself; but the principal use of it, is to mix with the following:

23.—*Raisin Wine.*

Boil ten gallons of spring water one hour, and when milk warm, to every gallon, add six pounds of Malaga raisins, pick them clean, and cut them through the middle, stir it up twice a-week for nine or ten days; then run it through a hair sieve, squeeze the raisins well with your hands, put the liquor into a cask, and to every gallon of it, put half a-pint (English,) of elder wine, bung the cask close up, and let it stand three or four months, then bottle it off.

24.—*Brambleberry Wine.*

Gather the berries in a dry day when fully ripe, squeeze them well, and strain them through a coarse cloth, and to every choppin of this juice put two pounds of brown sugar, and a very little water; let it stand to ferment in an open vessel for eight or ten days, then barrel it up, filling the cask quite full, and keep it so with some reserved liquor. In about a fortnight, or when it gives over working, draw it off, clean the cask well, and return the wine into it, and to every gallon, (Imperial measure,) add one bottle of brandy, bung the cask close up; let it stand one year, and bottle it off. This, in the course of another year, becomes a rich and delicate wine, and it is none of the least of its recommendations, that it is a cheap one, where brandy cannot be got, or the price is too high; an equal quantity of malt whisky will make it very good. But to improve the flavour of malt spirits for this purpose, put into a bottle of it three ounces and a-half of powdered charcoal, and four ounces of the flour of rice, and let it stand a fortnight, shaking it repeatedly during that time; then strain the liquor off, and filter the grounds through a piece of blotting paper, and the liquor will be found nearly of the same flavour as brandy.

25.—*Gooseberry Jam.*

Take the jam-berries, pick them clean, and for every pound of fruit take one pound of loaf-sugar, put the berries into the pan, and strew the sugar over them as you go along; pour in a little water, and put them on the fire, and let them boil slowly for a little while; then take the scum off, and make the fire quicker, and let them boil until they jelly.

26.—*Gooseberry Jelly.*

Take any quantity of red gooseberries, put them on the fire, with a little water, until they are scalding hot; then take them off, squeeze them well, and pass the juice through a sieve; to every pound of juice take one pound of loaf-sugar, beat it well, mix it among the juice, put it on the fire, and boil it for about fifteen minutes, or until it jellies.

27.—*How to make Salt Butter fresh.*

Put four pounds of salt butter into a churn, with four quarts of sweet milk, and a little arnotta, churn them together for about an hour, then take the butter out, treat it the same way as fresh butter, adding the usual quantity of salt, and about an ounce of powdered sugar to each pound of butter. The butter will gain, by this operation, about three ounces every pound.

28.—*How to cure bad Butter.*

Throw the butter among boiling water, and let it stand until it is melted, then skim the butter off as clean as possible; then put it into a churn, and churn it over again, with sweet milk, treat it the same as fresh butter, adding sugar and salt to it when churned. This operation cleans the butter completely; but there is a loss in the weight of it, all impurities falling to the bottom of the vessel in which it has been put with the water.

29.—*How to preserve Apples.*

To do this, nothing more is necessary than to lay them in bulk upon a dry floor, and throw a thin linen cloth over them before the frost sets in. This is the method practised in North America and Germany, and it is found to be effectual; care must be taken, however, that no spoiled or bruised fruit is laid down, as it will soon corrupt, and destroy that which is sound.

30.—*Apples and Pears dried.*

Pick your fruit perfectly sound, and boil them in strong ale-wort over a slow fire for a quarter-of-an-hour, then take and press them flat, and dry them in a stove, or a very cold oven; when dried, put them up in papers into a box, and they will keep all the year.

31.—*Stewed Pears.*

Take the pears, and peel the skin clean off them, cut them in halves, and put them in a stew pan, boil the peelings in as much water as will cover the pears, strain it off, and make it as sweet as syrup with a little sugar, and pour it over the pears; when this is done, lay a pewter plate on the top of the pears, and the cover on the stew pan as close as possible, stew them over a slow fire for half-an-hour, or until they are quite tender, and they will be of a fine purple colour.

32.—*To preserve Oranges and Lemons.*

Take fine sand, clear of earth, make it very dry in an oven, sift it through a fine sieve, and when cold, put a layer, of about an inch thick, into a well jointed box; upon this sand place the fruit so as not to touch either the wood or one another; then fill up the vacant spaces all round with sand, and cover the fruit about half-an-inch with sand, and put another layer of fruit over that, and so on until the box is full; make the top layer of sand an inch in thickness; then close the box, and set it in a cool place, and the fruit will be kept in high preservation for many months. Almost all kinds of fruit may be preserved in the same way; but the sand must be perfectly dry, and the fruit sound,—the least moisture in the sand, or the least blemish in the fruit, will, in a short time, spoil the whole. Apples may be preserved sound, by pitting them like potatoes; but they lose their flavour in this way, although they are greatly improved in appearance.

CHAPTER IV.

Miscellaneous Receipts.

1.—*How to make Capular.*

Take two pounds of loaf-sugar, and a little water, cast the white of an egg among the water, and put in the sugar; put it on the fire, and boil it until no more scum arises, taking it off as it gathers; then squeeze in the juice of four lemons, and boil it to a jelly: this is used as a seasoning for punch or toddy, and is an excellent substitute for the essence of lemons.

2.—*Oil of Flowers and Herbs.*

Take sweet almonds, take the skins off them, but not by blanching, lay a row of them in a close earthen vessel, then a layer of flowers, and so on until the vessel is full; then lay them aside in a cool place for ten or twelve days, then take the flowers, press the oil out of them, beat the almonds in a mortar, and extract the oil from them, run the whole through a bag; then let the oil stand to clear from all impurities.

3.—*How to extract the essence of Flowers.*

Procure a quantity of the petals of flowers that has an agreeable smell, next card thin layers of cotton, and dip them into the finest Florence oil, sprinkle a small quantity of salt upon the flowers, and lay them in an earthen vessel, cotton and flowers alternately until the vessel is full, tie the top of it with a bladder, and expose it to the heat of a southern sun for fifteen days; after this, squeeze the whole mass, and fragrant oil will be obtained little inferior, if that flower is used, to the otto of roses.

4.—*Syrup of Poppies.*

Take two pounds of corn poppy flowers, and four pounds of warm spring water, let them stand to infuse twenty-four hours; then strain them, and add as many fresh flowers to the water, warming it before you put them in; let them stand close covered up until next day, then strain it, and take an equal quantity of sugar, by weight, with the liquor, and boil it into a syrup. This syrup is merely opium in disguise, and is often used by nurses to make their children sleep; a little of it for this purpose at times may be useful, but it should never be put into the hands of lazy or ignorant people.

5.—*Substitute for Human Milk.*

Take two ounces of hearts-horn shavings, boil it over a gentle fire, in a quart of water, until the water is reduced to one pint, mix this with twice its quantity of cow's milk, with a little sugar; and this will produce a liquor approaching in nature to human milk, and may be given to children, when that of the mother fails.

6.—*Worm Oil.*

Take half a-pound of senna leaves well pressed, twelve ounces of olive oil, mix these together, and keep them in a sand heat for four or five days; then press the oil out, put it into a bottle to preserve it, give a child about half a tea-spoonful fasting every morning, increasing the doze with the age of the person. This is said to be an infallible cure for worms of all kinds. I cannot vouch for it, I give the receipt as it was given to me,—the medicine must be persevered in for some time to have a proper effect.

7.—*Syrup of Beef.*

Take the lean of the best beef, cut it down into small pieces, put it into an earthen jar, close the jar in such a manner that no water may get into it; put the jar into a pot of boiling water, boil it for five or six hours; then take it out, press the juice from the beef, let it stand to cool, then carefully skim every particle of fat off; when this is done, put it up for use. In using it, take half a wine glass of the syrup, and fill up the glass with the best brandy, mix it well together, and drink it. This is a dear syrup; but those people who are consumptive, will find it a cheaper one than the doctor's bill, and will do them as much good as all the medicines he can give,—one glass should be taken three or four times a-day.

8.—*A dish of Rice.*

Take one pint (Scots measure,) of new milk, set it on the fire in an iron pot, with three ounces of unground rice well washed, and boil it for at least two hours, stirring it all the time with a wooden spoon, to prevent its burning; after it is boiled, put in some sugar, pounded cinnamon, and a little butter, if suitable to the taste: this is a pleasant article of food, and is very light on the stomach.

9.—*Rice Soup.*

Put on the fire four quarts of water, with one pound of lean beef, with three ounces of rice, boil them rather more than an hour, take out the beef, pull it into shreds, and return into the soup, with one pound of raw veal; next grate down a little carrot, and shred small a handful of parsley; put these into the soup, with a little salt and pepper, and boil the whole gently for another hour.

10.—*Rice Bread.*

To one pound of unground rice put five or six quarts of clean water, boil it until all the water is evaporated; then pass the rice through a tin cullinder, then mix it among two quarts of new milk, make it blood warm; then take a little yeast or barm, with three or four pounds of fine flour, or as much as will make a stiff paste; mix the whole together in the manner of a spunge; let it stand close covered up to ferment, and when it drops, take another quart of milk, about three ounces of salt, with flour to make a light dough, give the dough a proof; then mould it up, and put it into the oven. This is an excellent bread,—those who wish it, may substitute sugar for salt; but I think the salt the best.

11.—*Orange Butter.*

Take the juice of twelve oranges, the yolks of eighteen eggs, double refined sugar to sweeten it to your taste, set it over the fire, and keep stirring it all one way until it grows thick; then put in about the size of a walnut of fresh butter, keep stirring to keep it smooth, and before taking it off the fire, put in a drop or two of ambergris; when it is thick, put it into China dishes that has been dipt in cold water first, that, when firm, it may turn out the easier.

12.—*Syrup of Oranges and Lemons.*

Take the juice from the fruit, and to every pound of juice put one pound and a-half of clarified sugar, grate the rinds, put the whole on the fire, and give it a boil for fifteen minutes, let it stand to cool, take the scum off it, and when cold, put it into bottles, and cork the bottles well. This syrup answers all the purposes for which these fruits are used, and if a little of it is diluted, with a due proportion of cold water, it forms an agreeable and refreshing drink during the summer months.

13.—*Conserve of Roses.*

Take red rose leaves, perfectly fresh, beat them in a marble mortar, adding by degrees double refined sugar, beat and sifted, put in as much sugar as the leaves will take in, and beat them until no particles arise, but the whole becomes one compact and solid mass; then put it up in pots, with paper over it.

14.—*Conserve of Orange-Peel.*

Take the clear rind of oranges, steep them in water of a moderate heat till they are tender; then strain the water from them, pound them in a marble mortar, and strain them through a sieve; then bring the pulp to a proper consistence over a gentle fire, and add to it thrice its quantity of loaf-sugar; bring it to a conserve, by beating in a mortar.

15.—*Cyprus Wine imitated.*

Take nine gallons of pure water, and nine quarts of the juice of white elder berries that has been squeezed out with the hand, without breaking the seeds, pass the juice through a sieve, and put it among the water; and to every gallon thus mixed, put three pounds of Lisbon sugar; to the whole quantity of liquor put one ounce and a-half of ginger sliced, and three quarters of an ounce of cloves; then boil it for half-an-hour, taking off the scum as it arises, then pour the liquor, when boiled, into an open vessel to cool; when cold enough (seventy degrees,) put it into a close vessel, and spread some good ale yeast upon a piece of toast of fine bread, put this in the bottom of the vessel, and let the liquor stand until it has wrought, which will be in about three days; put it into a cask that will just hold it, adding about one pound and a-half of raisins of the sun split, which must lie in the liquor until drawn off; it will be the month of January before the wine is fine enough for bottling.

16.—*Clarified Sugar.*

To every pound of sugar cast the white of an egg into a gill of water, put it on the fire, and as soon as it boils up, throw in a little cold water, do this four or five times, until the scum appears thick on the top; take off the scum, and if the scum appears ropy, boil it over again, adding the water as before, scum it, and pass it through a straining bag.

17.—*Smooth Sugar.*

The sugar being thus clarified, put it on the fire again to boil smooth, which you may prove by dipping the skimmer into the sugar, and touching it with the forefinger and thumb; in opening them, there will be a small thread betwixt them, which immediately breaks, and remains in a drop on the thumb. It is then smooth sugar, and by boiling it a little longer, it will draw into a longer string, it is then very smooth.

18.—*Blown Sugar.*

Let the sugar boil a little longer, and try it thus, namely, dip in the skimmer, and take it out, shaking off what sugar you can into the pan, and then blow strongly through the holes of the skimmer; if certain bubbles or bladders blow through, the sugar is boiled to the degree, called blown.

19.—*Feathered Sugar.*

This is a higher degree of boiling, which is to be proved by dipping the skimmer when it has boiled somewhat longer; shake it over the pan, then give a sudden flirt behind you, and if the sugar is enough boiled, will fly off the skimmer like feathers.

20.—*Crackled Sugar.*

Let the sugar boil somewhat longer, then dip a piece of stick, or the shank of a tobacco pipe into it, and immediately remove it into a pot of cold water, draw off the sugar that cleaves to the stick; if it become hard, and will snap in the water, it is enough; if not, give it a better boil.

21.—*Carmel Sugar.*

Lower the fire, then boil the sugar a little longer, dip in the stick, as aforesaid, directly into the water; if it has come to carmel height, it will snap like glass that moment it touches the water. This is the highest degree to which sugar can be boiled; observe to have your water always very cold, or else it will deceive you.

22.—*Cinnamon Tablet.*

Boil the sugar to a feathered height, then take the pan off the fire, and to every pound of sugar take sixpence worth of the oil of cinnamon, mix it well among the sugar, pour it into proper dishes, rubbed over with the oil of almonds or sweet butter; when cold, mark it gently into squares with a knife. Ginger tablet is made in the same way, substituting half-an-ounce of ground ginger instead of cinnamon,—the finer the sugar the better, and greater will the quantity of tablet be.

23.—*Peppermint-Drops.*

Sift some powdered sugar through a lawn sieve, and mix with it the juice of lemons, and as much of the oil of peppermint as will render it palatable, and of a proper thickness; put it in a sauce-pan, and dry it over the fire for a few minutes, stirring it with a wooden spoon; then drop them on writing paper, let them remain on it until cold.

24.—*Orange Drops.*

Rusp half-a-dozen of China oranges very fine, and squeeze them with the rind in a small bason; then squeeze in the juice of two lemons, mix with the juice as much powdered sugar as will make it into a proper thickness, put it on the fire in a stew-pan; drop them on writing paper, and take them off when cold.

25.—*Lemon Drops.*

Mix some double refined sugar, beat and sift it, mix it with the juice of lemons, and make it very thick; put this into a copper stew-pan, and finish them in the same manner as orange drops.

26.—*How to Remove the taste of Turnips from Milk or Butter.*

The taste of turnips is easily taken from milk or butter, by dissolving a little nitre in spring water, which, being kept in a bottle, and a small tea cupful put into eight gallons of milk, when warm from the cow, entirely removes any taste or flavour of turnip.

26.—*How to cure Butter.*

Take of common salt two parts, saltpetre one part, sugar one part, reduce the whole into an impalpable powder, beat them together, so that they may be completly blended; to every sixteen ounces of butter, add one ounce of this composition, mix it well into the mass, and close it up for use, keep it from the air, and if the butter has been well separated from the milk and water, it will keep for years.

In the curing of butter, there is often great mistakes committed in giving too much salt,—people imagine that if they give a great quantity of salt all is well, little considering that it is not the quantity used, but the manner of using it that makes good butter. There are many casks of butter which is put into the bakers' hands half stinking, and yet there is salt enough in it to cure double the quantity,—the reasons of this is, the butter is cured with what is called rock salt: this salt is naturally hard in itself, and rather of a disagreeable taste; but were it reduced into powder, these blemishes would hardly be perceived, were the proper quantity put in. This, however, is not attended to,—the salt and butter is mixed together in a rough state, both in this country and in foreign nations; the consequence is, that the butter is not cured at all.

On opening a cask of butter, it is reckoned good if it stands clear of the cask; when it does so, it is an evident sign that it is firm; but its being clear of the cask, is not from its being good, but from the enormous quantity of salt placed betwixt the cask and the butter. It is probable enough that this salt is placed here for the purpose of preserving the butter, and not to enhance the weight of it; but those who do so, are not aware that such butter is the first that spoils,—the salt, instead of keeping it sweet, imparts a very disagreeable taste, which, in a short time, goes through the whole mass. But on the supposition, that the end proposed is attained by such a quantity of salt being put round the cask, yet as there is no necessity for such a practice, it is evidently an unjust one, in as much as the purchaser is obliged to pay for what in a manner is quite useless. On some goods there is a drawback allowed for waste; but on butter there is none,—with the exception of the cask, all weighs as butter; and although a fifth part of it should be salt, which may be the case, the money is charged for butter alone.

Perhaps I may be wrong in my opinion, but I cannot help thinking, that from a cask containing one hundred weight of butter, there should be ten pounds deducted for waste. This may be called a great quantity, but it is no more than justice,—certain I am that the statement I have made is rather below than above the amount of actual loss, and I cannot conceive wherein it can be just to charge any person a shilling or ten-pence a-pound for an article whose intrinsic value is barely one half-penny. This is profit with a vengeance, and why is not discount given corresponding to the amount of it?

27.—*How to keep Potatoes.*

The method of keeping them by pitting, is well known to every one, and little may be said about it; and indeed for the most part of the time that this root remains in the pit, they will keep nearly as well without if kept dry, and under cover, at least while the temperature of the place they are kept in remains below forty degrees. As it is the increased heat which makes them bud, they must be kept as cool as possible when the spring quarter advances, and when this becomes insufficient, the next resource is, to destroy the principles of germination, which may be done in the following manner:—

Take any quantity of potatoes, wash them clean, put them into a tub, cask, or any vessel that will hold water; then pour boiling water over them to cover the whole, throw a cloth, or any thing that will prevent the steam from getting over the vessel, and let it stand for about five minutes; next take the potatoes from the water, spread them out in the sun to dry; dry them thoroughly, then lay them aside, inspect them a-week afterwards, and if no sweet has been upon them, lay them past for use; they will keep in good condition until the introduction of the new crop renders it unnecessary to preserve them.

They may be preserved without water, by those who have the conveniency of an oven; put them into it for ten or fifteen minutes, then order them as directed in the former receipt, observe to make them thoroughly dry before you store them away; for if they are not dry, they will sweet, from that they will soon begin to rot, and when the rot takes place, the destruction of the whole is certain and rapid, and there is hardly a possibility of preventing it.

28.—*To cure Frost-bitten Potatoes.*

When potatoes are frost-bitten, and are to be used for family use, take the skins off them, put them into cold water, and strew a little salt over them; let them stand in this for about ten hours, and they will have become quite hard, but full of large black spots; these, however, are seldom very deep, and may be easily taken off with a knife; when this is done, dress them what way you please, and they will eat remarkably well.

29.—*To dress Potatoes.*

The simplest, and the most common way of cooking potatoes, is boiling them in clean water; they are however much better when prepared by steam, which would only procure the additional expense of another vessel. Take a pot or pan, or whatever vessel is in the house, put it on the fire half full of water, with a little salt; next, instead of putting on the lid, have a tin cylinder that fits the pot exactly, full of potatoes, and put it on; have a lid to the cylinder, make all close, and the potatoes, in this way of cooking, will be far superior to the ordinary method.

This plan being adopted, it might be carried to any extent; for instance, a prudent housewife might have such a vessel to put upon her *kail-pat*, and the potatoes would be imbibed with the most nourishing part of her broth, which, by the present system, goes up the chimney. To those who grumble at the price of this work, I would say, that this receipt itself, simple as it is, is worth double the money to any private family every year.

So much for receipts; and, in conclusion of this part of the work, it is certainly incumbent upon me to confess, that to others I am indebted for a great many of them. The biscuit receipts may, to some bakers, appear different to those they have been used to; but they are such as I generally use myself, and I can recommend them. As for the others, I believe that they are good; but I cannot say so from my own knowledge, they are carefully selected from different sources, and it is hoped that every one will be found useful.

BOOK IX.

CHAPTER I.

Scottish Bakers, why they understand their business,—London manner of working yeast, &c.

SCOTLAND has been famed for producing a great number of bakers, and these in general well learned in their profession: the character, however, which they have gained, is more the fruit of mechanical skill than chemical knowledge; there are few, comparatively speaking, even in Scotland, where the art is so well known, that ever thinks of applying themselves to the attainment of this indispensible part of their profession. Indeed the theory of the art is never taught,—the young baker is set at once to manual operations, and there are few teachers among the masters, who, if they have the ability, will take the trouble to explain the meaning of the complicated operations which is carried on in a bake-house; their object is to make expert workmen, as it is termed, that is, to learn them the mechanical operations alone. This, of course, by a retentive youth, is easy learned, when nothing else is taught him,—the whole of the table work rests upon one simple operation, which is the first thing learned, that is, chaffing; and if the young man acquires this to perfection, the other operations naturally follow. Were the theory of the art taught at the same time that the mechanical operations are, or, in other words, were chemistry and mechanics, in the baker's case, kept united, he would not learn so quick; but then in the long-run he would become a more expert workman, of greater value to his employer while a journeyman, and he would find the benefit of it, in his own case, when he comes to be a master.

The first thing asked at a journeyman baker is, Can you chaff? Can you mould such and such loaves? or can you pin a biscuit? But it is seldom asked, Can you set a spunge? or if there is a bad loaf, Can you give a reason for it? Do you know the constituent principles of flour? or can you tell why yeast or barm has the property of producing a fermentation when incorporated with flour? These are questions that every baker should be taught to answer; before he can do so, in a proper manner, he is incapable of conducting a business, be he ever so well learned in the table work. While every thing in his hands is of the best quality, and the weather remains invariable, with regularity of hours, he may stumble through his work pretty fairly; but no sooner does a change take place, either in the quality of his stuff, or the state of the weather, than he becomes completely bewildered, and many a good parcel of flour is spoiled before he can produce a good loaf of bread again. I know well enough that this will be deemed an ideal supposition by many of our self-taught bakers; but I appeal to the experience of every master who has a proper knowledge of the business himself, for the confirmation of what I say. There are few, I believe, who have not had experience enough to teach them, that good bread depends more upon chemical skill than mechanical dexterity, and yet strange to tell, this chemical knowledge is never inquired after. I have hinted elsewhere, that the art of baking is still in its infancy, and I am well aware that I have advanced what will be denied by many, even by those who are professional in the trade. I grant, indeed, that in relation to fancy biscuits, we can hardly look or wish for greater improvement; but the baking of biscuit has little connexion with the production of a good loaf of bread. For fine work, as it is called, little else is required than manual dexterity, and a ploughman may be made a complete workman, in this line, in the course of three months, while the same individual would perhaps take eight or ten years to produce a good loaf of bread.

This is a text for our grandmothers to lecture on, and perhaps from them it may descend to some of our modern philosophers, who very likely in a learned discourse upon the nature of things, and the capability of man, will demonstrate that what I have asserted above, is not true. They will tell us perhaps, that many have learned their business in six months, and been able to conduct one in twelve; very true, such things have been, and may be again; but how was the business learned, or how was it conducted? These are questions that I should like to hear answered in a satisfactory manner, before an opinion was formed upon the subject.

Some one perchance may say, why is the baking art so far behind, when other arts are making such rapid advances towards perfection? The bakers in Great Britain must either be a parcel of fools or blockheads, else why lag they so far behind their countrymen in other professions? I believe it will be found that the bakers are like other people; but the fact of the matter is, *they dare not make improvements in their profession, but at the hazard of starvation.* The law has set them a boundary, over which they must not pass, and even were this not the case, local prejudices are against them,—the least deviation from established custom, no matter how beneficial, is sure to be scouted at as an attempt upon the baker's part to impose upon the public. Many instances of this might be given; but one is quite sufficient for the purpose, which was this:

The dear times, as they are emphatically termed, are still in the recollection of many, which was a period of *almost* universal distress;* but this is little to the purpose. Well, when the cry of distress was echoed through every corner of the land and when grain, of no description could be got, but at a most shameful price, some people turned their attention to the use of potatoes amongst their bread. Accordingly, one baker, under the suggestion of a gentleman, to whom Scotland is greatly indebted, tried the experiment; but he soon had reason to repent of the daring innovation. The public were well aware that it was merely an experiment, and calculated for their own good, at a time when many were actually starving for want; yet for all that, the baker, in a few weeks, was under the necessity of issuing advertisements, that he had returned to the old system, as few or none would enter his shop door for a piece of bread.

Notwithstanding all the impediments that have been thrown in the way, some improvements have taken place; in fact, it was something like an impossibility but that they should, especially in Scotland; but these improvements have always been brought on, as I may say, by stealth, and it is hoped, that as prejudice wears away, the baker will be released from those fetters which, from time immemorial, has held them bound in the British Empire.

As the bakers in Scotland are thought to surpass their Southern brethren in the knowledge of their art; it may perhaps be necessary to state the reason of this,—the mental capabilities of each nation, I presume, is the same. It may be stated generally, that the different ways of working in every bake-house in Scotland, tends much to the improvement of the baker in the mechanical part of the work, and this is all that is required from nine-tenths of the journeymen in London. It may be said with truth, that a journeyman baker, in Scotland, has an apprenticeship to serve in every house he goes to,—the principle of all indeed is the same; but the manner of working in every house is different, which soon calls forth the energies of an active disposition.

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* Not to the agriculturists; these years were the commencement of a new era to them, many of whom made independent fortunes.

Perhaps it is not the least disadvantageous to the Scottish bakers, that many of them are bred in the country: this may be denied, as the universal opinion is, that any trade can only be learned to perfection in large towns. With respect to other arts, I know nothing; but the opinion rests upon no solid foundation, or rather it is altogether false, when applied to the baking art; true, there is finer work performed where there is a great and wealthy population; but this only applies to mechanical skill, and the country baker has the advantage in gaining chemical knowledge. Of course this depends upon circumstances, for if the baker will not set himself to learn, or have the misfortune to be under those who will not take the trouble to learn him,—a stupid ignorance will naturally be the consequence. But when an active youth gets into a house that is really a baker's house, his means of improvement, in my opinion, is superior in the country, than what he can enjoy in the city.

I rest this opinion upon the well known fact, that the country baker's stock is seldom of such a uniform quality, as that which the town bakers can procure; it is understood that a mixture of different kinds of wheat, if not absolutely necessary, is at least beneficial; but this few of the country bakers can come to, and it is probable that they change their stuff every week. Now, although this statement does not proclaim the overgrown wealth of the country bakers, yet the circumstance in itself is highly conducive to the acquirement of chemical knowledge.

It is granted that the country baker, at the expiry of his apprenticeship, is seldom perfect at the table work,—the limited operation on the table in the country, not admitting of that perfection requisite in other places; but then, he has learned what is of more consequence, the chemical properties of the articles he is working amongst. In possession of this knowledge, the mechanical part is easily acquired,—the whole secret of which, as I have said before, consists in the proper performance of one single operation. Thus the country baker, being initiated in the first principles of the art, on his removal to the city, soon rises above those of the same standing, who have been taught there, and who have learned nothing but the mechanical part of the art.

If we extend our observations to London, we may assert, that many bakers who are reckoned indifferent hands in Scotland, obtain the best situations there, and at the same time give satisfaction by their work; but it must be observed, in reference to this statement, that mechanical ingenuity, and not chemical skill, is what is required in that place. Every baker, in Scotland, has his own way of working, whereas, in London, there is no difference at all, when once a man has learned the way of one house, which, with an ordinary capacity, he may do in one month's time, he may go through the whole of London,—all the difference is only in the quantity of flour that is baken each night in different houses.

It is an old proverb, "we'll go to London to learn our trade;" but if the baker has not learned it before, he need not go there for that purpose; at least, whatever he may learn, is of little use to him should his intention be to take up his permanent abode in Scotland. Indeed there are few Scots bakers ever visit the metropolis of the British Empire, with the intention of further improvement in their profession; their object is to obtain greater wages, and how far they succeed in this speculation, it is not mine to say, probably these people will find themselves disappointed, if they take every thing into consideration.

It may be asked, why is the Scots bakers held so much in repute in London? Simply, I answer, because they are better learned than the London bred bakers: this does not arise from any difference in abilities, they are as capable of learning on the south, as on the north side of the Tweed; but the opportunity of doing so is never within their reach. A seven years apprenticeship is passed by the baker in London doing nothing, or what weighs equally the same, in learning principally to attend a few bakings, or in the serving of customers with bread; these no doubt are necessary parts to be learned; but they are subordinate to what the baker should be taught. The utmost stretch of his learning, is to make a piece of dough, set a spunge, mould the bread, and perhaps put it in the oven; but more than this, he does not learn, nor is it reckoned at all necessary to learn more: this includes the whole routine of the baker's work in London. To set a spunge, as at present done in London, to make dough,—to mould, and to set the batch, are mechanical operations which are soon learned, and learning this, the baker may think himself complete, and so he is as long as he remains in the place; but he must not change his situation, for in other places he can do nothing. The table work of Scotland is indeed very different from that of London; but it naturally leads on to the method there,—reverse the places however, and the work is also reversed, that is, the table work of London, instead of approximating to the Scots bakers, throws the hand completely out, at least I found it to be so, in my case; after three or four years absence, on my return, I could hardly mould a loaf equal to an apprentice of six months standing.

Many will say, and indeed have said, that the Scottish bakers are more steady than the English, but this is a mere fabrication, a report propagated by those who are far from being steady themselves, and believed only by those who know nothing about the matter. There is no doubt but that volatile characters will be found among them, (for where is such not to be found), but I rather think that if the scales are not equally poised, the preponderance will be found on the south side of the Tweed, and if the bakers there are not so well learned as their northern brethren, the fault is not theirs, the error lies in the system practised. To talk of a system in the art of baking may seem foolishness, being so dependent upon the circumstances of time, place, and the quality of materials used, but in London there is one uniform system adhered to without variation.

The baker in London begins his work betwixt twelve and one o'clock noon, when he puts in his first spunge in the following manner:—Mix up the water to the heat required, according to the season, then incorporate with it the yeast, which in general is one gallon to two sacks of flour, make a division with the sprent board in the trough, pour in the liquor, and add flour sufficient to make it pretty stiff, cover it close up until it rises and drops again, which should be in an hour and three quarters, it may be two hours, but if it exceed that time, the spunge has either been too cold set, the yeast bad, or an insufficient quantity given; in either case the bread will be sad. On the other hand, if the spunge drops before the hour and three quarters, the spunge has either been too hot set, or too much yeast has been given to it, and the natural consequence is, that unless very great attention is given to the after processes, the bread will be sour.

This process is termed the first spunge, and if it has wrought and dropt free, that is, in a proper time, good bread on the following day may be expected; whenever the first spunge drops, another quantity of water, generally cold, is taken with a little salt. This is put into the spunge, the whole well incorporated, then flour added to make a pretty stiff dough. After this dough is made, or what is termed by the bakers the second spunge set, it is covered close up until it rises and drops again, which should be in the space of eight hours, then the remainder of the water is taken, with all the salt required, dough made, and a proof given it for three hours.

Eleven o'clock at night is the time appointed to make dough, this takes up about an hour and a-half. During the time of proof the bakers take a sleep to themselves upon the boards, rolled up amongst a parcel of flour sacks. At three o'clock, or a quarter before it, the dough is thrown out of the trough, weighed down, moulded and set into the oven, all these operations are finished by five. The rolls are next wrought down, and the trough pitched; that is, the flour is put in and sifted for the following day's baking. At seven the batch is drawn, immediately after, the oven gets fresh fuel, which must be consumed, and the rolls baken by eight o'clock. Thus every operation is regulated by time, and it behoves the man who has the charge of the business to be very circumspect in every process, that the whole may be concluded in a proper manner by the time appointed.

The bakers in London purchase no wheat, consequently their attention is given to the procuring of a good sack of flour, which the millers, or their factors, supply them with, calling regularly upon them at stated times. A great quantity is sold in Mark-Lane, but it is always of an inferior quality, and not calculated for the full-priced baker; it is this stuff which the undersellers purchase, and retail again in the shape of bread to those who perhaps wish to save a glass of gin off the price of a good article. The London flour (the full-priced I mean) is remarkably good, the reason assigned for this is the goodness of the wheat; without question the wheat must be good, or the flour cannot be so, but perhaps it is nothing the worse of having a few beans put into it, although it may be termed a roguish action by the public.

When we judge of the quality of flour, we must not only consider the quality of the grain that it is made from, but also the moving power employed to grind it. Wheat ground and dressed with water, will give a greater quantity of flour than the same wheat will do when wind is employed, but the water-ground flour will not give the same quantity of bread as the other will do. The atmosphere of a water-mill is always moist, the flour in the process of grinding and dressing imbibes with avidity this moisture, which makes it weigh heavy, but whatever moisture is taken up in the grinding, so much less water is required to make dough, consequently it is a loss to the baker.*

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* Water, where a continued supply can be procured in sufficient quantities, is the steadiest moving power for a flour-mill, but when a supply of water cannot be obtained, and in many situations such will be the case, wind with great propriety might be used instead thereof, without resorting to the expense of steam. However, it may be argued, that a wind-mill cannot be raised to a sufficient power to answer a great demand, as the power of those, in common operation, is so limited in a flat wind, being incapable of working, unless it blows a very brisk gale, and in a storm many of them are quite unserviceable. On a survey of those machines, however, it will be found that there is not one of them calculated to take the wind in a proper manner. Two-thirds of the power applied is lost in the common wind-mills by the adherence to an error which the most unthinking may perceive, namely, they are all made to act upon the wind, whereas they should be made for the wind to act upon them. I was lately favoured with the view of the model of a wind-wheel wherein this objection is obviated, the

Whatever may be thought of the matter, I have not the least hesitation in declaring that a mixture of beans is highly beneficial, but it is said that the millers adulterate their flour with other articles. I should like to see proof of this before I concede to what has been said relative to this subject. Will those wise people who tell us that flour is mixed up with chalk, burnt bones, or the plaister of Paris, tell us how the mixture is made; these articles may be ground at the expense of breaking the whole machinery of the mill, but how they are to be passed through the bolting machine is more than I can tell. I grant that there is a great deal of bad flour in London, but this is no proof that it is poisoned, as many assert. Of late it has been fashionable to discover a great many faults—the motive is easily seen through—but, in my opinion, *the reprover of vice should himself be virtuous.*

As the bread in London gets stale in a very short time, our learned gentlemen have laid hold on this circumstance to infer the use of something else than wheaten flour for the purpose of making bread. The miller has been blamed of putting chalk, burnt bones, &c. amongst his flour, and the baker has been blamed for putting alum amongst his bread,—neither of which conclusions are warranted by proof. That the flour is adulterated with those articles mentioned above, I do not believe, for this plain reason, that no baker would ever purchase the second parcel of such stuff, as it would not make bread at all, neither does

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power, on comparison of those mills in present use, are as two to one, and of course will only require the wind at half the velocity to produce the same power, and is in no way limited in its operation by an increase of wind, as in a few minutes it may be regulated to work in the greatest storm. The inventor's name is Mr Robert Wilson, house-carpenter in Dunbar, whose name has already been before the public as the improver of steam navigation.

the staleness arise from the use of alum, but from the quantity of yeast requisite to make a light loaf, and the time required to bake it.

Could proper yeast be procured, a small quantity would serve the purpose; but as the grounds and yeast are mixed together by the brewer, the strength of it is so much lessened, that one gallon is barely sufficient for two sacks of flour. As this ground yeast does not fall to the bottom until the spirituous part of it is evaporated, it is of little service to the baker. It will thicken his liquor, but little more; besides, it is an acid, and is that part of the yeast that leaves a bad taste behind it, being composed chiefly of the grosser parts, both of malt and hops. True, indeed, with prime flour and proper management, a saleable loaf may be made with this ground yeast, but the quantity required to make any thing like a light loaf is by far too much for the taste of the bread, and it must be doubly baken before that taste is removed. From the time required to bake the bread, the possibility of giving it a proof after it is moulded is precluded, and in fact very little of the brewers' yeast will stand a proof at all, unless there is more than a due quantity of salt in the bread, consequently every loaf is set into the oven as it is moulded. The operation of moulding and setting, generally takes up an hour, after which the bread stands fully two hours, of course some of the bread is more than three hours in the oven, and is so thoroughly dried, that it will cut whenever taken out of it, and in twelve hours time it is stale; should it happen that the flour is of an indifferent quality, or the yeast bad, (and both may be the case), in the time specified the bread will get very hard, and full of chinks round the outside. This is the appearance which our chemists tell us indicates the presence of alum or adulterated flour; whereas it is the natural consequence of indifferent stuff, either yeast or flour, though both are genuine, and the system practised in London.

With the present brewers' yeast and brick ovens, I do not think that the bakers in London could alter their system of working. The ovens in London will not take on a heat solid enough to bake a batch of loaf bread in an hour, the time that is allowed in Scotland,—the ovens and the yeast are adapted to each other; brewers' yeast will not stand proof,—unproved bread will not bake in an hour,—and the ovens will not take on a heat to bake it in that time. The tiles or brick that is taken for the sole of an oven in London, is by far too thin, their utmost thickness not exceeding two inches, whereas they should at least be nine; and this thickness would create an additional expense that might be saved by the use of stone instead thereof. It is true, that such are not procured in London, but stones dressed, and fit for the purpose, could be procured in many parts of Scotland, and the oven, after it was completed, cost less money than what the present brick ones do. But, in the event of the bakers getting stone ovens, it necessarily would follow, that the system of baking should be changed also, or better yeast must be procured than what at present can be got from the brewers.

The yeast is a very expensive article to the bakers, being on a average three shillings per gallon, the one half of which might very well be saved, by the adoption of artificial barm. I have given some excellent receipts for the making of it; but I have to observe, the materials must be of the best quality, they must always be new, and the hops of a light pale colour. Some bakers have adopted the use of this barm; but the practice is by no means general; there may perhaps be some prejudice in this, as it is not the first time that they have changed their yeast or barm, though it must be confessed, that the brewers rather got the better of them,[*] a proof that a small bribe will do when well applied. It is true, this new barm was not good in itself, being an acid; but with this the brewers had nothing to do, and in fact did not care; they wanted their own article sold, which was the reason of their interference; but they would have come more honourably to their purpose, had they never said a word about the matter. Fermentation, as it was called, would soon have found its level, and they would soon have got a market for their yeast, without appealing to the drouthy affections of the journeymen bakers.

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[*] Some years ago a company was invited from Glasgow to settle in Lon-

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don, for the purpose of making fermentation, as the bakers had taken into their heads, that this composition stuff was superior to the brewers' yeast. Nearly £5000 was laid out in buildings, and proper utensils suitable for carrying on the business in a large scale, and it was soon in full operation, promising complete success. To this manufactory of barm, however, the brewers had no great liking, for though it might be a saving to the bakers, it was none to them, as their yeast now lay upon their hand an unproductive article. One would have imagined, that when this was the case, they would either have made the yeast better, or sold it cheaper; but as such, is not upon record,—we are led to believe that they did neither. Instead thereof, they invited the journeymen bakers to their several houses, and gave them their full of ale, promising to repeat the compliment daily if they would oblige their employers to take their yeast again, and give up the use of fermentation. To this, the journeyman bakers meanly acceded,—the brewers gained their point, the new establishment was given up, and the brewers promise—at what time was it fulfilled, or will it ever be? Query, who, in this transaction, acted the meanest part, the master brewers, or the journeymen bakers?

CHAPTER II.

The Bakers' profits, what they are,—Private Baking no saving,—Calculations,—Farmers middlemen, their manner of dealing, &c.

A great deal has been said about the bakers' profits, and, by the generality of people, they have been always considered shamefully high; but the fact of the matter is, a baker will never make a fortune, by a regular trade, as other tradesmen may, and can do. His only chance for making the world, as it is termed, is in the market, with the command of ready money; there, should it be his good fortune to purchase a quantity of cheap grain, and the markets get up directly, of course he will save money by the purchase; but this is called injustice, and many a baker has been charitably given over to the devil, because he has sometimes got the market in his favour.

But were the bakers' profits much greater than what they really are, I really cannot perceive the reasonableness of so much grumbling in the public mind against the bakers alone, while other people, who also deal in the other necessaries of life, are exempted. The bakers' profits are assigned him by law: this, methinks, should satisfy the public, especially when their own profits are never intermeddled with by legislative enactments; but perhaps it is this very forbearance that is the reason of such a discontented spirit getting among us. It is only some years ago, that a very learned gentleman made a calculation of the bakers' profits, and inserted the whole in the public papers. His calculations were quite correct, so far as they went, but he stopt short in the midst thereof, and forgot to tell, that in every parcel of wheat there are always a little bran, seconds, &c. The Assize table is set upon the assumption, that every bushel of wheat shall produce standard flour equal to twelve quartern loaves of baken bread; but this learned gentleman made it clear to a demonstration, that the calculation was wrong, and that, instead of twelve, eighteen quarterns of standard quality should be made from every bushel of wheat. Now, had this calculator investigated the matter a little more closely, he would have found that sixty-four pounds of fine flour is required to produce eighteen quartern loaves; and how such a quantity of flour could be produced from a bushel of wheat, which in itself could not exceed sixty-four pounds at the utmost, perhaps he could have explained.

The calculation was a ridiculous one, and such as none but a fool would have made public; but it made a noise at the time, and even now I sometimes get it thrown in my teeth by people who should have known better. Some indeed have expressed a degree of surprise at their own stupidity, on the matter being explained to them; but still the public opinion is the same, that every particle of wheat is calculated to make standard bread. Were such wheat to be found, the allowance to the baker would have been liberal indeed; but experience also tells every one of us, that we cannot make standard wheaten bread from wheaten bran, and must be content to use the standard flour for that purpose, although the allowance, by this measure, is reduced one-third below what our learned *friend*, alluded to above, made it appear to be.

There are many who still hold the opinion, that the bakers allowance, even with twelve quarterns to a bushel, is by far too much. I grant that it is quite sufficient were the trade a ready money concern, and no discount given; but as this is not the case, the great profits said to be realized by the baker upon his trade, has no other foundation than the opinion of the public. In the country, the baker is allowed six shilling on a boll, (four bushels,) and seven in the city, to pay the expense of baking, and to keep himself and family. Now, on the supposition, that the baker bakes twelve bolls a-week, which, in many places, is reckoned good work, this, at the utmost, would only amount to two guineas a-week, from which must be deducted the expense of barm, salt, fire, light, servants wages, and such a sum will remain as many of our ordinary workmen would scorn to accept of as their weekly wages; yet the sum, trifling as it is, the public judge by far too much for the baker to enjoy, and generally put it in their own pocket,—I allude to those who, as a matter of saving, bake their own bread.

That every person may and can make bread for themselves I do not dispute; but the question is, Can they do it to as much perfection, and at a less expense, than what the law obliges the baker to do it? I answer, No. For two guineas the baker bakes twelve bolls of wheat into bread for the public; but let any private family keep an exact account of what the same quantity will cost them, when baken for themselves, and they will find, that, without taking time into account, it will cost them double the amount. I make my calculation on the supposition, that the private family gives the same price for their flour, salt, yeast, and coals, as the baker does; as for those good people who get all these things for nothing, with such, comparison is vain,—the baker does not get them for nothing, neither does he pay a farthing less for the making of a coat, or a pair of shoes, than other people do.

I have many time been surprised why there are no other class of tradesmen subject to the regulation of the Assize, and as often surprised that bread is, in most cases, the only article whose price is grumbled at by a generous public. Even at the present time, bread is the cheapest necessary of life; yet, strange to tell, it is the only article that the people are in general discontented with. It must be obvious to all, that prices are merely relative terms made use of, to express the value of one article with another, and a quartern-loaf may be cheap at eighteen-pence, while, in six weeks afterwards, the same loaf may be dear at nine-pence; but this is a point which nine-tenths of our grumblers either cannot, or will not understand, as little do they choose to understand that the cheaper the bread is, so much greater is the bakers profits.

It is a very erroneous idea that many have got into their head, that the baker has an interest in having dear bread; these people are not aware of the discount given by the baker, and that for every shilling additional given for his wheat,—he must also add another penny in shape of discount for this additional shilling's-worth of bread.

But, after all, what is the reason that the bakers are the only tradesmen whose profits are limited by law? Does the legislature intermeddle with that of other peoples? Is the farmer obliged to sell his grain at a certain price? Or, is the corn-merchant, or the millers allowed, by law, only a certain profit? No; indeed these people may demand what price they please, and the public find no fault with their doing so. There are many tradesmen who can honestly charge fifty per cent. of profit upon the articles they deal in, without a whisper been heard against them. The tailor may charge what he pleases for the making of a suit of clothes, which is, keeping cabbage out of the question, often beyond all reasonable bounds; but who ever took it into their head to circumscribe the tailors' profits by an act of Parliament? How does the butcher, (I beg his pardon,) flesher, I should have said, sell his commodity? There are few of the inhabitants of Britain, but have learned this by experience,—the butcher's bill, however, is paid cheerfully, although it may be, upon an ordinary sized bullock, that five pounds, by the butcher, is esteemed a small profit. It may not indeed, in his opinion, be a great one, yet I cannot help observing, that he has as much clear profit upon a single bullock, as the baker has upon twelve quarters of wheat, to cover all expenses. But who ever says that the butcher should be content with a less rate of profit, or what law obliges him to give into the magistrate a weekly return, under oath, of the price of the cattle that he purchases, that the magistrate may set the price of meat from these returns? There is no law, and there never was any law in existence to this effect; it is the bakers profits only that the legislature has thought proper to interfere with, —merchants, manufactures, grocers, in short, every person who deals in any commodity, let it be corn, spirits, or gunpowder, can charge any price they please for the articles they deal in, and the law intermeddles not. The customer may refuse to give the price for the goods which the vender chooses to put upon them; in this case, the vender may keep them to himself, he is under no obligation to sell, nor is he liable to a prosecution for refusing to do so. Not so with the baker, his price is fixed by law, he may charge less, but he dare not charge more than what the law allows him, neither dare he refuse to sell a loaf, when money is tendered for it.

The farmer may keep his grain for a year if he pleases, the corn-merchant may buy up as much as he can, and likewise refuse to sell; but should the baker be unable to procure grain, (and how can he, when none will sell?) in a few weeks, as I am informed, the law can pronounce him to be a bankrupt. If such is the case, is the law equal? Why is the farmer encouraged to keep up his grain, and protecting laws made in his favour for the express purpose? Why is the corn-merchant allowed to accumulate such a stock? In defiance of the law indeed; but yet by courtesy under no obligation to sell, but when or where, or on what terms he pleases, while the baker, if he cannot procure stuff for his daily work, is looked upon with such a threatening aspect.

In the administration of the affairs of men, there should at least be the resemblance of justice; and, in a free and mercantile country, such as Great Britain, every individual, who deals in the necessaries of life, should be compelled to dispose of these necessaries at the market price, to any person who tenders money for them. Some such law is certainly necessary, I have felt the inconveniency of it on my own part; many, many is the time that I have been refused grain by the most respectable of our farmers, with the money in my pocket, for no other reason than that they would not sell it at the market price.

I do not say that the farmer should be placed under the Assize laws; by no means, I consider them to be extremely oppressive, and do not wish to see their power extended; but obliging a man to sell his goods at the market price, is not affixing the amount of profit that he shall take. I may be wrong in my opinion; but I cannot help considering that it would be a beneficial thing done, were the Assize laws repealed altogether, and the baking trade thrown open, or then, that the farmer, the corn-merchant, the butcher, in short, every tradesman who deals in the necessaries of life placed under them; it is incongruous to justice, that one class should be placed under vassalage, while the other may do as they list, and never called in question for it.

While I contend that the profits of other tradesmen are far superior to that of the bakers, I am no advocate for small profits to any trade. Those that seek for every thing done for nothing, are not aware perhaps that they are seeking after impossibilities, or what is worse, doing all in their power to ruin their native land; without a profit no living man can subsist; and if a trade cannot support the man that has learned it, for what purpose, I ask, has he learned it at all? Has he learned it for no other purpose than that the public may shew him, by their conduct, that he is of no use in the world, and is a being that his Maker never intended to create? Whatever may be said upon the subject, my opinion remains unchanged, that great profits are not only expedient, but necessary to the well being of the state; let those, who would controvert the matter, inform us how they can live upon nothing, and how so many manage to make a fortune by selling goods cheaper than what they bought them at? The question is rather a puzzling one, and, in fact, I have never had the fortune to meet with any person who needed to be told the meaning of profit and loss.

There are many make a profession of selling cheap for the benefit of the public, as they are pleased to term it, yet not one of them make good their pretensions. It is a wide expression, and I may be blamed for it, yet for all that I must declare, I never knew a cheap seller, no matter what profession, that was strictly an honest man; that is, I always found them ready to take advantage of the ignorance of their customers, when they had it in their power. Undersellers, of all descriptions, have always two or three prices to accommodate the discriminating qualities of their customers, which may be reckoned fair in the course of trade; yet, for my own part, I never could reconcile this conduct to justice.

If we look into the ways of men, we will find that those who are selling cheap goods are the very people who are seeking the largest profits; with this I find no fault, it is well known that profits must be got, but let such profits be got in an honest manner, and without hurting the credit of others; at the same time I would advise those who are continually grumbling at the profits of others, to be content with a moderate one themselves; we generally find such people the most inexcusable, in fact, complete extortioners.*

Whatever may be the reason of this I know not, but it is a universal case, that those who grumble most at the high profits of others, are those who take the greatest profit themselves. The high profits that it is supposed the baker gets, has raised up a number of grumblers that have resorted to the practice of baking their own bread, that they may put these profits in their own pockets. To enter into an argument with those people to convince them that they are wrong in this respect, perhaps would be labour lost, but we will take them on their own ground and ask this question. If each person was to do every thing for himself, in what state would the world get into in a few years?

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* I once got a lecture, as long as my peel rod, from an honest woman, a shepherd's wife I presume, for the enormous sin of taking ten-pence for a quartern-loaf, when the wheat was 72s. per quarter. The old lady, I believe, would have held forth till the present time upon the subject, had not a third person put a stop to her discourse, by asking her what she was getting for her lambs this season? The question, it seems, touched her feelings, at least it had a reference to the weight of her own purse; and I shall never forget the rage and disappointment depicted upon her countenance, when she turned upon the querist,—"Lambs," said she, her whole frame shaking with passion, "dinna ask me what lambs are selling for,—they are selling for naething! the price,—their no worth bringing to the market for't, that I'm sure! They charge me ten-pence for a quartern-loaf,—the deil be in their impudence; and me to get only twa scabet ginneas for my fine lambs,—troth the country will be ruin'd, and that mony ane will see,—twa ginneas for lambs, and nae mair; it's a shame to be h'ard tell o'; and as for thae rogues o' bakers, I'll live on whun stanes first, or I encourage such extortions,—ten-pence for a quartern-loaf, four-pence is owre muckle for't,—twa ginneas for my lambs; but the deil tak me an as good—" How the honest woman concluded her sentence I cannot say, as I did not stop to hear it; but, in my journey through the world, I have found many of her opinion, who thought their own goods were like lambs in the month of March, bringing no money at all, while they considered their neighbour's profits as of power sufficient to bring down the curse of Heaven upon the country.

In London there are probably five thousand bakers. Now, we will suppose that these five thousand men should take it into their heads to make their own clothes, and employ some of their leisure time at the shoe-making art; will any person tell me how many tailors and shoe-makers would be thrown idle by such a measure, and how much flour these idle men would be able to purchase to make bread for the support of their families?

But it is said the baker can neither make clothes nor shoes—this assertion is not true. I have seen them perform the work to greater perfection than I ever saw a private family make bread for themselves. I once was witness to the labours of two journeymen in this matter; they, for a frolic, made to themselves a pair of breeches and a pair of trowsers, each of nankeen. Their separate expenses came to fourteen shillings and nine-pence, whereas, if they had purchased the articles in the tailor's shop, each would have had to pay thirty-three shillings. There was certainly some difference in the price, and I do not mention the circumstance as an encouragement to the bakers to usurp other people's profession, but merely to show that the baker can help himself in this respect if he pleases, and that, in comparison of other tradesmen, he has the least share of profit.

In short, if a person wishes to live by his own trade, he must condescend to let others live by theirs also; the grocer, the tailor, and a whole host of others, may bake their own bread, as they say, to save money; but with all their saving, will these people be any thing the richer at the year's end, than if they had purchased their bread out of the baker's shop. I answer, No. In the first place, the private family cannot bake bread so cheap as they can buy it at in the baker's shop; and, in the second place, the most of those goods which the baker may require from these people would more than overbalance all the saving of their own bakings, even if there were any saving at all. It is something strange, that this circumstance should be overlooked by many reputed wise; why, if the grocer, &c. bake their own bread, they put it out of my power to purchase their goods in return; and here I would ask another question, which party is to be the greatest sufferer at the end of the year?

The bakers profits never were great, they have themselves reduced it, by giving so much discount; and the Imperial measure has reduced it still farther, that is, it has taken fully five per cent. off that he had in the old measure, or, in other words, the old measure is as twenty-one, and the new as twenty; so that for every twenty shillings that the baker pays for his wheat, there is just one shilling taken off him by the introduction of the Imperial measure, but this is all in the favour of the public. It seems, however, to be the case,—the lesser the temptation, the greater is the propensity to resort to private baking.

But after all, is it not the better part to have the several arts divided? Would the hair-dresser, who bakes his own bread, buy bread from the baker, if the baker dressed hair and shaved? Would the dealer in snuff, the tallow-chandler, or the soap-boiler, purchase bread from the baker, if the baker dealt in these articles? No, they would not; the very idea of these articles being manufactured where bread is made and sold, is quite disgusting, and would turn the strongest stomach.

I might now say a little, relative to the purchasing of grain, and the different people the baker must come in contact with to get it; unless it is in the open market, the farmer will not sell a small lot, and the baker is often obliged to resort to the corn-merchant, where he may get a-peck to buy, but it is often to the poor man at least, shamefully high.

Corn-merchants, or middle-men, are in general an insinuating set of people, and while the purchaser can keep out of their debt, he is almost sure of good treatment; but when the reverse happens, which is not unfrequent, the tables are completely turned. A corn-merchant seldom deals with a person for any length of time, without the person getting into his debt; and as long as the bills are regularly paid, all is well,—the very dog is welcome to the parlour; but should a partial payment be made once or twice, a little alteration is perhaps made upon the weight of the stuff, as a gentle hint, that matters is not as they should be; if the hint is not taken, a stronger doze, of the same medicine, is repeated, to have a due effect. The baker, perhaps, at the first, takes no notice of the want of one pound or two upon a bushel of wheat; but when it happens frequently, he naturally makes a complaint to the purchaser, which brings out a promise of inquiry upon the subject; but very likely the next parcel is worse than the last. This of course is the cause of a second complaint,—much sorrow is expressed for the mistake, and amendment is promised; but a hint is given at the same time, that cash is wanting on a certain day, and, if convenient, the amount of the bill outstanding would be very acceptable. If the baker can come forward with the whole amount, good and well, the merchant is then his humble servant; but, if otherwise, he becomes, what is emphatically termed, one of the merchants own people, that is, in plain speaking, a man whom the merchant may do any thing with.

True, credit is not refused, but the stuff is advanced twenty per cent. on the market price, and good grain is never to be got,—the merchant *now*, not dealing in that article on his own account, and what he may have in his possession, is lying merely upon commission. This may not be the practice with all, but I tell what I have seen done more than once; and it is the baker's interest to keep out of the corn-merchant's debt,—that day he allows his name to be inserted in the merchant's books, he may set down as the beginning of his own decline.

When such is the case, is it not advisable to purchase grain only from the farmer, it is so; but will the farmer sell it to the baker in small quantities, and at any time the baker requires it? This is a question not easily answered,—the farmer is very unwilling, and, in fact, will not sell a small quantity of grain, and he is as unwilling to part with it, until forced by necessity to such a measure.

It is certainly the interest of the farmer to dispose of his grain at the currency of the market, he gains nothing by hoarding it up, even on the supposition, that the market rose a little. What other grains lose in keeping, I cannot say, but wheat loses greatly in three months; if kept as it ought to be, there will be a loss of five out of a hundred, and it must be a great rise that will cover this loss. Indeed, in the straw, wheat will keep its bulk the better; but if the farmer calculates upon the loss of interest for money that he might have had, he will find that his best plan is, to take his grain to the market weekly. Their general practice, however, is to keep it up until forced to sell it for want of cash, and when they do bring it to the market, it is in such quantities, that the market is completely glutted. Herein they lose themselves; what the baker wants at a time, is but little in comparison of the farmer's demand for cash, that they cannot clear the market, and the corn-merchant becomes the purchaser, after the grain has stood perhaps two or three days, and the price fallen ten shillings per quarter. Indeed the farmer prefers the corn-merchant for a customer, as he takes a greater quantity at a time, below the market price; and very often on bills for three or six months credit; but they get the money at once by paying discount at the bank. The farmers are a greedy set of people, but avarice often defeats its own intentions, and it is often exemplified in the farmer's case. They give encouragement to the middle-men, and, by this measure, lessen their own profits, and in my opinion, enhance the price of bread to the public. It is granted that the middle-man gives a great sum of money at once to the farmer, and such sums has a specious appearance; but, without the fear of contradiction, I assert, that the farmer loses five per cent. by the intervention of these middle-men, independent of what the public has to pay additional for their bread.

As matters stand at present, the farmers cannot help themselves in this respect, the corn-merchant having got the full command of the market, for which the farmer may thank his own stupidity and foolish pride. But to make good this assertion, it may be necessary to look back a few years and inquire how this pride was generated, and by what means a race of useless beings has sprung up among us, I mean the middle-men, who, speaking from conscience, I believe are *worse than useless.*

The original state of the agriculturist was that of slavery; but when the bond of vassalage was broken, they too shared in the blessing, and became free. The produce of the soil was now considered as their own, and by frugal industry, they soon became a respectable class of men, and it is not fifty years ago since they considered themselves as composing the part of a great family, whose prosperity was adding to that of their own; but times are changed, they consider themselves as superior, and they stand aloof from the greatest part of the population of Britain, imagining it to be derogatory to their character to be seen in company with a tradesman,—how are we to account for this change of conduct in men, who have accounted themselves as the chief support of the British Empire? I own that the question is a difficult one; but a short review of what has been transacted for the last thirty years, may give a little insight into the matter.

CHAPTER III.

Retrospective View,—How the Farmer rose to his present situation,—His Pride,—Machinery.

I believe that few of the present generation will forget that protracted war, which was terminated at the battle of Waterloo. To inquire into the occasion of that war is foreign to my purpose; it might be necessary, or it might not, but as we had entered into it, just or unjust, we could not expect to get out again without a struggle. Accordingly, our rulers laying their account for an arduous contest, preparations were made for it, by calling forth the strength of the country, and our own commanding attitude was heightened by alliances with foreign states. Of course we expected that in a short time we would procure peace upon our own terms; but success is not always commensurate to the efforts made to procure it. Our allies, (states which Britain had purchased,) were every one of them conquered in detail, and in a short time, the greatest part of Europe was prostrate at the feet of France.

The ruler of the French people conscious that Britain was the soul of the alliances against him; and, sensible at the same time, that our commerce constituted our real strength, turned his attention to crush that commerce. The idea of invasion was futile; it behoved him to destroy the British navy before he could accomplish the terms of that empty threat; but other means were in his power, and these means he used with success. As he had by conquest acquired an almost uncontrolled sway over continental Europe, the first act of his power was to shut the ports of every state against the trade of Britain; and immediately upon the back of this, it pleased Heaven to visit these islands with a scanty harvest, for two seasons running. The consequence of this, the failure of our own crops, and our inability to procure supplies from abroad, was, that grain rose rapidly to an enormous height. The profits of the farmer rose in the same proportion, and the demand for farms became unprecedented, of course the rents also; and this we may say, that although the price of grain was raised by accidental circumstances, yet it was supported and kept up by a certain and regular cause.

As the success of our enemy continued, and his efforts being uniformly directed to the annihilation of our trade with foreign nations, by excluding us from those places over which he had the least control; it followed, of course, that our markets still continued high, from the cause stated above, added to the wants of a destructive war, and an enormous issue of paper money. It is true, that the price of land, in some instances, was more than doubled; but the highest rent given was nothing, in comparison of the price received for the grain. In this state matters continued for a number of years,—the farmers always getting an average crop from the soil, and, humanly speaking, three prices for every bushel they sold, consequently their profits were shamefully high. The farmer could now no longer be contented with that parsimonious manner of living in which his forefathers had lived, he considered that as his profits increased, he was justified in aspiring to a more elevated rank.

The sovereign in mercy withheld titles of distinction, or they would have soon choked themselves with pride; but they made up for this courtly neglect, by aping the manners of the great as much as possible. But, like all bungling artists, instead of a correct copy, they made a most ridiculous caricature of the chief nobles in the land, by their gentility and extravagant manner of living. Formerly, with hat in hand, they waited upon the steward every quarter-day with the rent; but now they think it the most condescending humility to give the head of the manor a simple nod, if they happen to pass him on the way.

It is the nature of wealth suddenly acquired, to generate an avaricious spirit, at least in the farmer's case it is so. The enormous profits which they realized every season, instead of satisfying, only increased a desire for more. Their ambition and avarice became proverbial, and even many of their work people were infected with the same distemper, though, it must be confessed, that the farmer kept his workmen as much under him as possible. It may not be improper here to state, that the farmer's work people consists of three classes: those termed hinds are married men, whose wages are, for the most part, paid in grain; consequently, when the markets are high, their wages are greater, and they rejoice in high prices as well as their masters. Another class is cotters, that is, these people have a house from the farmer, but are not his regular servants; they generally agree for their house, to give so many days work in the harvest; and after the stipulated term is fulfilled, they receive, for the other days' work, if any, the current wages of the country. This is all very fair, if nothing else followed; but they are liable to be called upon every day in the year by the farmer, to do something or other; it is true, that they are paid for their work, but the farmer is under no obligation to give them work. Nay, it will frequently happen, that the farmer will employ strangers at an under price, and keep his own people idle; and what is worse, they will not allow them to take one day's employment elsewhere. This class of servants are, in every sense of the word, slaves. True, the whip is not employed, and the service is only for a limited period; but still their condition, under an imperious master, is bad enough; they cannot boast of freedom. The third class are the young, or unmarried men, whose former residence was in the farmer's house, but has latterly been transferred to the stable, that the distinction, betwixt the employers and the employed, might be more obvious. It was stated before, that one class of work people (the hinds) had their wages paid in grain,—the higher the markets were, of course the higher were their wages; and it could not be said that the farmer advanced their wages one single farthing,—neither would he have raised the wages of the other classes, had the measure not been forced upon him by dire necessity. The wars in which we were engaged, employed the flower of the nation,—the choicest of our youth were sent to the battle field, and the farmer found it difficult to procure hands for the labour of his field. Sometimes he might curse the war in his heart, that raised the labourers wages so high; but he had little reason to do so. It was the continuance of the war that shut us out from the whole of Europe;

that the farmer was raised from a subordinate situation, to become, in his own opinion, the greatest in the land.

I confess that the farmers had ample reason for this supposition, the wealth of the nation was in a manner thrown into their hands. The want of trade shut up the resources of the merchant,—the spring of wealth was dried up; but he had to be supported, and his capital dwindled imperceptibly, but rapidly away, to get him daily bread. Many, indeed, of the middle ranks of society were reduced to subsist on parish charity, and became the scorn of the worthy farmer, who became rich as the better men became poor. Amidst the ruin of national prosperity, the farmer kept rapidly improving, in wealth I mean, and pride was the consequence. They had reached to a giddy height,—on the mount of ambition,—they had one eye fixed upon the pinnacle of avarice, and with the other, they looked down with the most ineffable contempt on all that was below them. Unfortunately for the country, there were not a few, if we judge by their own standard of excellence, I mean taking wealth as the true criterion of greatness; they always estimated moral worth by the weight of the purse.

Farewell now to humility! The farmer thought the company of a tradesman a disgrace; and it is not long since, that a farmer's daughter came home from a ball, and complained to her papa, with the greatest possible dignity, of the insult put upon her, by the introduction of a tradesman's daughter to the same place. Anciently the farmer used to sit down with his people to dinner, with no other distinction than the head of the table. The case is now reversed; many of the farm servants, instead of being admitted to dine with their lords, were actually prohibited from entering the kitchen; and to cook victuals in the same vessel, for master and man, was in a manner putting poison into the farmer's cup. Such being the case, it was not be wondered at, that they resorted to other genteel customs,—a race horse was procured, a fowling-piece for daily sport, and some half dozen of dogs for the chace,

> "Wealth makes fools, but wisdom makes a man."

This proverb the farmers could not understand in its proper meaning; with them, wisdom was foolishness, and in wealth was centred every virtue. As a man grows rich so he was esteemed; they judged the world by their own opinions, and thought that an ostentatious display of gaudy grandeur was the only way to procure respect, and they acted accordingly. After having exhausted every delicacy that Britain could supply, they grew disgusted with them, and turned their attention to foreign luxuries. A stock of the best wines, and that of the richest kind, was laid in; some went the length of one hundred dozen in the year.

A few years ago, a landed gentleman in East-Lothian, happening one day to pass the door of one of his tenants in his carriage, stopt merely for the purpose of asking a question or two. "What a pity it is," said the farmer, "that you did not call a little sooner, dinner is just over; but if you please to alight, there is still three kinds of wine upon the table." This boastful speech made the gentleman alight, and true enough, according to the farmer's statement, there were three kinds of wine upon the table. Perhaps my readers may be surprised, when I tell them, that the laird was dissatisfied with all the three kinds, and immediately requested that a fourth should be set before him. But that fourth kind, my good friends, was the same with which Adam regaled himself in Paradise; it is pure water, I mean, a beverage that few farmers are fond of. The laird, however, would taste no other kind; and, after having refreshed himself, he dispatched; and, no doubt, he had his " ain think, like the Highlandman's cra'." I might mention the worthy farmer's name; but as the son has now succeeded to the titles and estate, A———, it will perhaps be thought a superfluity to do so. He had, however, a pretty and accomplished daughter, who was extremely fond of music; her taste was indulged, and she became a proficient in many of our best airs, particularly that lively Scottish air of " Jenny dang the Weaver;" in her hands, it was said to be a valuable performance.

When the farmer had thus become such a great man, he soon imbibed the idea, that it was beneath a gentleman to sell a small quantity of grain. " Send me in twelve bolls of oats," said a meal-dealer, to one of them, " and you shall have the money before it is taken off the cart, if that will content you." The answer given was, " I can't be troubled with such a trifling order; it is not worth my while to break bulk for it;" of course the grain was not sent. This proud opinion of theirs was strengthened by the facility with which great quantities was taken off their hands by army contractors, who required a great deal for the supply of our troops abroad. Five or six quarters of grain, which might be what the baker required weekly, brought but little money to the farmer, in comparison of two or three hundred, which the army contractors took at a time. Hence they soon got shy of dealing in a small way, and many of them would have laughed in the face of any person who would have sought three or four quarters of wheat, or any other grain from them.

True, indeed, the farmer did not get as much money from the contractor as he did from the baker and the meal-dealer; but being a great quantity at a time, it had a specious appearance,—it made a great difference in the pocket,—the price of six quarters, and the price of two hundred, even supposing that the greatest quantity was lower in price by ten shillings. These people, the middle-men I mean, in most cases, bought the grain by the average of the market, and always, with very few exceptions, by bill of three months' date, while the farmer always charged the bakers, &c. within a shilling of the top price, and considered it a piece of great condescension, if they gave one month's credit.

Before this period no people upon earth were so fond of giving credit; they forced it upon the bakers, and begging them for God's sake to take their wheat, and the day of payment was to be their own quarter-day, that they might not fall into the clutches of the steward. But no sooner was the price of grain raised to such a scandalous height, than they changed their note. They first insisted for short payments,—then upon delivery, and at last many had the unblushing impudence to demand payment, perhaps eight days before the grain was sent in. This conduct did not proceed from a suspicion of the person's inability to pay, but purely from a foolish pride, that taught them it was a low, a mean concern to deal with any person but gentlemen; and, in their opinion, the contractor was such, as he had always money at his command, at least, what was equally the same, bank credit.

After the passing of the bank restriction act, a great many banks started up in the country, and the vast quantity of paper issued by these banks, was a never failing resource to the farmer, if the contractor's orders did not satisfy his demands. The greatest part of them were proprietors of these banks; but this did not imply that they had money there, or were really men of capital. A small premium was advanced on every share, and even this, if I am rightly informed, after a short period, could be withdrawn. But the share-holder had credit to the amount of what share he had subscribed, independent of what he might obtain by being, what is termed, a regular customer of the bank. Hence, if these banks gave way, which is not an impossibility, (instances might be adduced of such things happening,) the man who had drawn money to the amount of his shares, would be obliged to refund; then, of course, the world *would pity him, little considering that the* honest man was only paying back borrowed money; and on his failure, those who really had paid for their shares, and never drawn it out, would be under the necessity to give up their property to make good their deficiency.

But this is nothing; the high price of grain,—the army contractors, with the aid of paper-money, rendered the farmers so haughty and overbearing for a season, that very few could deal with them, but those who could give them ready money for fifty or a hundred quarters at a time; a small quantity they would not sell, and credit to any amount was out of the question, unless it was to the corn-dealer.

From being army contractors, the transition was easy into agents, corn-merchants, or more properly middlemen; and when the demands of the army became lessened, they turned their attention to the supplying of the civil part of the community with bread-corn.

Whether the middlemen had entered into a combination to obtain the command of the market, I cannot say; however they found materials in the farmer's pride, and upon these they wrought, until at last it came to be the case. This first plan was to prepossess the farmer with his great importance, in which, if they did so, they had no reason to complain of the want of success. The next was to obtain a good character for liberal dealings, in which, it must be confessed, they also succeeded in a great degree. Many bakers, in attending the market, found that they could purchase cheaper from the corn-merchant than the farmer, and the poor man had this advantage by purchasing from the corn-merchant, namely, a mixture of different kinds of grain. The corn-merchant alleged that he could purchase grain cheaper, by taking such a quantity at a time, than the baker could do, who only wanted a small parcel. These allegations were true, they could do so, and at first they were very liberal in their dealings, while the farmer grew more and more haughty. Thus by degrees the farmer and the baker was disunited, and the trade of the middlemen increased with rapid strides, so that, in a short time, he had the whole market under control.

In this manner has the farmer hurt himself,—his pride and haughty demeanour turned away his most regular customers, the baker and meal-dealer; and given his countenance to men who take every opportunity to crush him. The baker, &c. it must be confessed, did not take as much grain at a time as the corn-dealer; but in the course of a year they took as much, with more profit to the farmer.

The liberal dealings of the middlemen procured them many friends among the bakers; they generally, in a rising market, sold this week at last week's price, whereas the farmer would refuse the best customer he had, if he expected three-pence more a quarter the week following. Thus the middleman got a footing in the country, so that when the farmer took it into his head to call upon a baker, he generally found him pre-engaged,—he had dealt with the corn-merchant, and he supplied him well, or perhaps he was in his debt, and could not with conscience go past him,—so that the farmer had to apply again to the corn-merchant.

But as the farmer had got into the practice of keeping up his grain, until forced to sell it by mere necessity,—the corn-merchant was aware of this circumstance, and not unfrequently took advantage of it, by purchasing the grain at his own terms. It may be said that this would be beneficial to the country; it was quite the reverse, the men who had to sell their grain in this manner, were in general those who were the least able to stand a low price; and the public at large reaped no benefit by it, neither did the baker,—the corn-merchant put the whole profit into his own pocket.

The assertion of the middlemen, that they sold their grain at only one shilling of advance upon each boll, was not exactly true. It was impossible that they could do so, to live like gentlemen, and make a fortune also. There may be some who sell at very small profits, but they all take the advantage of the market; they in general purchase at the average price themselves, and it is not reasonable to suppose that the baker can purchase at the average price again. Their price, with few exceptions, is the top of the market, and that which is sold below it, is always of an inferior quality. Indeed, with a man who can purchase a great quantity at once, and give ready money for it, they will be very favourable in their dealings: this is one virtue which they possess, that the farmer is destitute of. The middleman will never refuse money, if he can take it, and any quantity of grain is at the buyer's service for cash, whereas the farmer will not sell at all; it is all to the same purpose, whether you take money in your pocket or not; if there is the least probability of the smallest advance, they will not part with a single pickle.

As the corn-merchant is liberal in his dealings, with those that can give ready money, I would consider that the baker, who lives at a distance from the market, might frequently get a good bargain from him. But my advice is, to deal as little as possible with these people on credit, —the baker's prosperity is then at an end, and dearly does he pay for a little indulgence.

Those who are conversant with grain, (with wheat especially,) are well aware, that it loses greatly on keeping for any time. There is a positive loss in the measure; independent of the expense of keeping it clean and sweet, this loss must be made good somehow or other: this can only be done in two ways, either by an advance of price, or a change of measure.

The advance in price is sometimes not obtained, of course there must be a certain loss, unless there is a great difference in the buying and selling measure, which there frequently is. But, even supposing that the buying and selling measure was one and the same, the bulk of wheat can be increased considerably by very simple means, without adding to the quantity of it, as thus: When wheat is dry, spread it thin out upon the floor, and throw a considerable quantity of cold water upon it; then turn it over several times, and it will soon have the appearance, to a partial observer, to be quite dry. And even the baker, (for few of them are up to the secret,) will not have the least suspicion, that any thing is the matter; in fact, watering of wheat improves the external appearance of it, making it plump in the pickle, so that, if he compare it with the farmer's receipt of weight, he will be very ready to conclude, that it is an excellent article.

It is such in appearance only; let the purchaser try the weight of it, if he suspects such things have been done, and he will find that every quarter of wheat is deficient two stone, giving to the man who practices such tricks, an increase of one quarter upon eighteen, which, when the wheat is dear, is no inconsiderable profit in itself. I do not say that wheat is watered by the corn-merchant; but, if it is done, it is a piece of complete villany,—worse than highway robbery. Not only does the watering of wheat lessen the quantity of it to the purchaser, but it also lessens the quantity of flour from the wheat that he actually receives. Water thickens the skin; makes it tough, so that it will hardly grind; and, when dressed, the fine flour will not part with the bran. In short, if the wheat is watered, the return of fine flour from the mill will be short nearly two stone every quarter, so that a baker buying such wheat, out of twelve quarters he only gets the return of fine flour for eleven.

When the baker buys wheat from the corn-merchant, let him first see the farmer's receipt of weight, then measure it over, and weigh it again; if a pound or two is wanting, this may be of little consequence; but, if it come to stones, there has been something done to the wheat that ought not have been done. But suppose that both weight and measure should agree, let the purchaser stand and see every bushel of it both weighed and measured, and, if possible, every pickle of it set out of the house before him. This, to use a sea phrase, is sailing near the wind,—it is so, I must confess; but my readers may rest assured, that I will never give them any advice, unless there is occasion for it.

It is seldom or ever, that the corn-merchant's weight corresponds with that of the farmer; but one pound or two is deemed of little consequence by the seller, although the buyer may have reason to think so. The difference of weight, however, may easily happen without the corn-merchant resorting to any undue practice; for instance, he buys various lots, of different weight, mixes them all together, then takes the average weight of the whole, and sells by it. This might do well enough, were the grain measured over again by the same people, and the same measure. Measuring of grain is a simple operation, as many people think; but, simple as it may seem to be, it is a very artful one, and few farm servants are so well up to this piece of work as the corn-merchant.

Perhaps, when the grain is measured in the barn, the measure gets a thump or two every time that it is filled, which saddens down the grain, and gives the purchaser more than he is entitled to. Measured in this manner, the corn-merchant becomes the purchaser, and he sells it again by the farmer's weight, but measures it over to the second purchaser by his own measure; and good care is taken that no more than legal measure shall be given. With this, I do not quarrel; but I certainly think it is unjust to impose upon the purchaser by a spurious weight. I may be wrong; but my idea of justice is, that the corn-merchant should measure the grain by his own measure; weigh it, and then sell by this weight.

The farmer's measure may be, and often is above the standard; for, with all their faults, they are in general men who love to give good measure; but this I cannot say of the corn-merchant,—he takes care that no more than enough shall be put into the measure. So cautious are they in this respect, that they will not allow the purchaser to assist in measuring over the grain that he has bought.

The corn-merchant has now obtained a lucrative trade, and, in their own way of it, it is always a losing concern; but I own that it rather puzzles me to find out by what means a man may lose in every bargain, and at the same time make a fortune. It is an explanation devoutly to be wished for; there must be some secret in the trade, that honest people are not as yet acquainted with,—will any of the corn-merchants be so good as let the public up to these secrets?

Do they water their wheat? I cannot expect an answer in the affirmative to such a question; well then, do they always sell their grain at only one shilling of advance? Let them answer Yes if they can, and I make, no doubt, but that sufficient witnesses could be produced to the contrary,—one is enough, and that one is their own external appearance,—how much wheat must they sell, at one shilling of profit each boll, to make a fortune in the course of a few years? Do they falsify the measure? I do not say they do so; but still, methinks, whatever may be their thought, justice demands that the weight should correspond with the measure.

I presume that it would be an improvement, in our present system, to sell grain, especially wheat, by weight, as well as measure. There are so many ways to deceive, by watering, and so on, that it seems necessary that some mode should be adopted, whereby all parties may get justice done them.

I do not say that the corn-merchant resorts to any unfair practices to make up the loss of grain in the loft, to pay the expense of keeping, or to obtain an extra profit; but after all, of what use is the corn-merchant to the country? They may be necessary, in some places, to act as agents; but I cannot see the propriety of allowing them to go into the market, and buying up the whole stock before ever a single baker is supplied. It is very properly forbidden to the retailer of butter, eggs, &c. to go to the market, and purchase a single article before a certain hour, by which time it is supposed that the inhabitants are supplied. Why is the corn-merchant an exemption to this law? He may buy every quarter of grain in any market, and the next moment sell it at an advance of twenty shillings, if he can get it, and not a word will be said to him. But let a poor cadger offer to purchase a goose, hen, or chicken, or any thing else, and it may be written down as a wonder, if he escape without a severe punishment, for daring to forestal the market.

Why allow the rich corn-merchant to engross the necessaries of life, and punish the poor hawker of butter and eggs, for endeavouring to obtain a living from the superfluities? I may be wrong; but it is my opinion, that the law should be impartially administered. What is justice for the rich, should be justice for the poor also. But let me retract my words, for it is not unlikely, but some of our *chief magistrates* may be corn-merchants themselves, and at the same time be extremely fond of a cheap goose!

From the intervention of these middle-men, I am decidedly of opinion, that every quartern-loaf that is baken, is two-pence dearer than it should be, were no such men in existence. Who is it that reaps the benefit of this permanent advance? Not the baker,—neither is it the farmer. The corn-merchant makes a fortune quickly and quietly,—is his calling a lawful one? It may be so; but I scruple not to say, that it is worse than useless.

I grant indeed, that there must be employment for every one, and many may say, that a corn-merchant can do no harm by standing betwixt the farmer and baker; that the grain which one man can hold, is as nothing in comparison to the demands of the country. It is true, that one corn-merchant in a county can do little, either good or evil; but if there should be twenty or thirty, each holding one or two thousand quarters a-piece,—these people will have a great influence upon the market. If so inclined,—and why will they not, when self-interest is concerned,—what is to keep them from lowering or raising the average of the market to suit their own convenience. True, these *gentlemen* may not have all the grain of the county in their possession; but there may be such a thing as fictitious sales,—one selling a quantity of grain to his neighbour at an advance of price, this one selling it to a third on the same terms, and the original possessor repurchasing his own article again,—all of which may be done, (and I should like to have proof that it is not,) without the grain ever being moved from its place, or one shilling ever paid for it.

I would ask, does the transactions of the corn-merchant add to the general prosperity of the nation? Who but themselves will answer the question in the affirmative. I grant that he may get rich himself, and he may employ a few people, who, in a short time, will get rich also, although their expenditure may exceed their stated income, perhaps one pound a-week; yet, notwithstanding, the conclusion that I come to, is still the same, namely, that the public evil has a greater preponderance than the private advantage. In fact, they do good to none but themselves, and a few dependents. The farmer is not benefited by them, and the baker gains nothing but perhaps a little credit, which may be the foundation of his ruin, and the public at large are actual losers.

CHAPTER IV.

The Farmer in prospect of adversity,—The Corn Bill,—Its probable operation,—The Middleman useless,—The age of refinement,—Machinery,—The conclusion.

Perhaps I have gone too far in my animadversions on the uselessness of middlemen, or corn-merchants, as they are called; but, I believe, that what I have said, is consonant to the British laws. Forestalling the market is an offence against public trade, and is described by statute 5th and 6th, Edward VI. c. 14, to be the buying or contracting for any merchandise or victual coming to the market; dissuading persons from bringing such goods, or persuading them to enhance the price after they are brought in.

Another offence against public trade, is that of regrating, which is, the buying of corn or other dead victual, in any market, and selling it again in the same market, or within four miles of the place.

Engrossing also is another offence, and is, the getting into one's possession, or buying up large quantities of corn, with intent to sell it again. The general penalty for these offences, by the common law, (for all the statutes concerning them were repealed by 12th, Geo. III. c. 71.) is discretionary fine and imprisonment.

We will now bid adieu to this subject, and return, for a little, to the farmers again, as we have seen them in prosperity, we will contemplate them in the prospect of adversity. That they were in a prosperous condition for a number of years, is evident to all; but that they ever were thankful for their prosperity, is another matter; and happy would I have been, could I have said so. The acknowledged fact, however, is, that they in general are a discontented race, with no real evils to afflict them. I never saw one, but had something to grumble at; one will be ruined, if rain fall before he get his hay crop secured; while another is as sure to be ruined, if it do not fall, to let him get his turnip seed put in. It is really diverting to get among them on a market day; a clever fellow might very easily, in that place and time, pick out subjects for a novel, in listening to their complaints, relative to the weather, and the low price of grain,—the evil of a bad crop, or the ruinous consequences of a good one.

It seems something strange, that a good crop should be reckoned a curse; but so it is deemed by many of our enlightened agriculturists. Their meaning was, I believe, that a good crop is only a curse, when the other parts of the population reaped the benefit of it. They wished for prosperity themselves; but actuated by an avaricious and discontented spirit, they could not bear the idea of others being in prosperity. This may seem an invidious reflection; but what proof can they bring forward, that this statement is not correct. In my estimate of men, I look to actions, not to words. A charitable speech at a public meeting, or a patriotic toast at a yeomanry dinner; like new gilding to a counterfeit piece of money, may make it pass for a-day or two; but a little wearing will brush the gilding off, and shew that it is but base metal at the best.

Had they not been a discontented race, (inheriting the disposition of Cain, the first farmer,) would it have been asserted by them, and their friends, that a good crop was a curse to the country, and then instruct the ministers of the Gospel to return public thanks to the Almighty for the blessings bestowed? Is there any hypocrisy comparable to this? Could the most abandoned of the human race offer such an insult to the Majesty of Heaven? Prosperity makes some men mad, at least forget themselves. Our agriculturists were in this predicament; they forgot that they were only men, and noted for all the luxury of extravagance, actually made a mock of those who could not join them in their revels. For some years they had all that man could wish for, and discontented still, while the nation at large was pining under the pressure of want, they felt it not in their own household, nor had they pity for those that did feel.

But although they could not feel for others, they could raise their voice on high, and let it be heard from one end of the land to the other, to tell of their own misfortunes in perspective. That the misfortunes, which they made so loud a noise about, was only in perspective, I appeal to facts. Which of them reduced their expenditure to within reasonable bounds? I have asked the question over and over again, and only one solitary instance have I as yet heard of. One worthy farmer reduced his consumpt of wine from one hundred to seventy dozen a-year. This certainly was a praiseworthy action, a bright example given to the world; but alas! none was found to imitate the noble deed. The sporting establishment remained as it was, who, amongst them, dismissed the race-horse, set the dogs a-packing, laid the gun aside, and regailed themselves with ale or porter instead of wine? None; to do so is not according to the genius of the people, and the age of miracles has gone by.

Did they, in the height of prosperity, prepare themselves for a reverse of fortune; did they commiserate others, and lay the foundation of pity to themselves if ever a reverse should come? No; they did not. In the midst of national distress, they, by their splendid style of living, insulted the feelings of their countrymen, and showed, in all their actions, that while they were blessed with prosperity it signified not though the world should go to ruin. Discontented as they always were, they wished for no change of circumstances; a change, however, did come, a change that was hailed with joy by every bosom, with the exception of the farmers of Britain.

After an unprecedented course of success, the power of our friends over the water began to decline, a series of misfortunes followed them with rapid succession, and the long wished-for peace arrived at last. The spirits of our merchants revived, the ports of foreign nations was again opened to our commerce, and they looked forward with hopeful expectations to that mutual exchange of commodities which, in former years, had raised the British Empire to a greater height than Rome could boast of in her glory. Well, after a long interruption, the ancient trade was again revived, and, amongst other imports, the country was, as the farmers termed it, inundated with foreign grain.

The farmers, under their present rents, and the taxation of the country, found, that with foreign grain in the market, they could not support that splendid style of living in which they had indulged themselves for years. The introduction of foreign grain naturally, in the first instance, lowered the price of it; this was to have been expected, and had the farmers submitted to a little loss, or rather had they curtailed their extravagant expenses, and held their tongues for a season, the opening prospects of the country was security enough that their prosperity would be permanent.

But instead of doing this, they beheld with rage and astonishment that they were undersold in their own market, and threw in a petition into the House of Commons, pourtraying in glaring language their expected misfortunes. Upon this petition a bill was framed, and after a considerable opposition, both without doors and within, the bill was passed into a law, prohibiting the importation of foreign wheat into the country until the average reached eighty shillings, and other grain in proportion.

Various were the arguments advanced on both sides of the question, but at last the landed interest prevailed. The enactment of the law, however, disappointed both its friends and its enemies, the anticipation of high prices was not realized. Two plentiful seasons, with the foreign grain free in the country, had given the consumer the command of the market,—the effects of the corn-bill was to be felt afterwards.

The nations of Europe had, as well as Britain, anticipated the profits of returning trade, but were miserably disappointed by the prohibitive measures resorted to by the British Government. Britain refused to take the only article which they had to spare. A long and destructive war had impoverished almost every nation in Europe, and none had money to spare to purchase those articles of British manufacture that their wants required, and which they were desirous of obtaining. This being the case, foreign nations were forced back to their own researches, and manufacturers of various descriptions arose on the continent of Europe. The assertion of our agriculturists, that the neighbouring nations could not rival us in any of our staple commodities was futile,—genius is not confined to colour or to climate; it is true that genius may lie dormant for ages, but necessity will fire the mouldering embers, and raise them to a flame; such it was with foreign nations, we forced them to the necessity of becoming their own manufacturers by our prohibitory measures, so that in a short time they refused to take any of our goods. Whenever the British merchant sent his cargo, there was the corn-bill staring him in the face. For this the merchant was not prepared, he had, with glowing hopes, contemplated the return of commerce with the blessings of peace, but how cruelly was he disappointed. We had given our friends over the water an excellent lesson, which they had sense enough to improve to their own advantage, the interest of the British merchant was of little consequence to them, and what they could produce themselves they naturally refused to take from us.

The trade of Britain now rapidly declined, and the farmer himself began to suspect, that, with his protection in his pocket, he was not even secure. Poverty, in its perambulations through the country, had apparently turned its face to their own doors; conscience whispered that the visitation was just, but being naturally a cowardly set of people, they trembled every inch of them. The advice which they had so often given to others, they could not take to themselves, they did not understand, when applied to their own case, the meaning of the word, circumscribed expenses.

The fear of an evil, however, will not retard its approach; grain fell rapidly, not as it was unfairly asserted from a superabundant crop, but from the want of trade, for which they had their own clamorous tongues to blame. As the merchant could not get a market for his goods, he, of course, had to dismiss his workmen, and those again being deprived of their weekly wages, could not purchase the farmer's grain. This was the principal cause of cheap markets. It is true that our crops were always good, but, had trade continued good also, the cheapness complained of would not have been in existence. That the markets were far too low to pay the farmer I grant, but it must be recollected that the generality of them refused to take what was really a good price, I mean that many refused to sell when the average was fifty-six shillings, and wisely kept it until the succeeding crop was nearly off the ground. The consequence of two years supply being thrown upon the market at once, in the depressed state that the country was in, is easily to be known, the grain getting below the cost of production, or nearly so, the outcry of the agriculturists was tremendous.

Their cry was great, but their distress did not reach to nearly the height they said it did; it is true that grain was cheap, but they had always abundant crops, and other articles of daily consumption was cheap in proportion. Besides, in many instances, their rents was reduced to some of them even fifty per cent. This was certainly a noble action of the landed gentlemen, but did the farmers show their gratitude by raising the wages of their work people, which was almost reduced to nothing? If they did, they had the modesty to conceal the matter, a piece of humility which I own indeed that I never gave them credit for.

I grant indeed that the agriculturists of England, those I mean who were small tenants, did feel the pressure of the times, but our Scottish ones did not. They heard the complaints of their southern neighbours, and, like snappish curs, fond of the chace, but ignorant of the scent, joined the general outcry, and almost made themselves hoarse with crying out distress. The word was bandied about from one to another, and so often repeated, that our Scottish farmers actually believed themselves upon the brink of ruin, merely by repeating the soul-harrowing words, agricultural distress.

That their income was lessened I allow, but will any man of common sense ever say that can be a distressing circumstance that only circumscribes extravagance? It was not poverty, in the true sense of the word, that they were afraid of, but their pride felt a shock even at the idea of being reduced to the necessity of keeping their expenses within reasonable bounds. It is no easy matter for men who for years have supposed themselves superior to the rest of mankind, to descend at once from that elevated station in which their fancied pre-eminence had placed them, but this was the farmers' case. To believe themselves great, was the natural consequence of being rich, they knew not that true greatness consists only in the mind, and not from the adventitious circumstance of having this world's goods at command. Therein lay the error,—riches and merit with them were words of one and the same meaning, and to have their wealth was to have their merit also. Many can submit to poverty, but very few are fond of being reckoned fools, and in this I found an excuse for our agriculturists. They naturally wished to keep that character of wisdom which their wealth had procured, by still retaining that wealth, but where was their wisdom on resorting to a corn-bill for that purpose?

I should presume that the farmer has learned by this time, that to get a remunerating price to themselves they must not circumscribe the trade of the country; but no, it seems they have not learned this yet. The corn-bill is their child of promise, and, without protection, they say they will be ruined; and I say in return, that the protection which they have demanded and obtained has been the ruin of the country. They give themselves out indeed as the supporters of the state; was it them or the merchant, that supported the nation in our last and most arduous contest? When they can answer this in the affirmative, and produce one single example of a nation being purely agriculturist, and great at the same time, I will give up the argument at once, and concede to their own way of thinking. But before they can answer this, I must still retain my own opinion, that it is to commerce that Great Britain owes its greatness, and that without the enterprising spirit of the merchant, nine-tenths of the cultivated land in Britain would at the present day have been covered with heath, and the farmers themselves been but the slaves of their feudal lords.

This assertion may be galling to their pride. It is my sincere wish that it may cure them of avarice,—the two passions are inseparable I grant, and if humility does not come with reason, I am perfectly convinced that the alteration contemplated in the corn-bill will make them humble enough. The first edition of it has brought the country to the brink of ruin, and the second edition will make the farmers' ruin complete, although they do not think so. Protection to one alone, and not to another, may be political wisdom, I shall not dispute the point, but this I am sure, and will maintain, that the corn-bill, if passed, as contemplated, will be the ruin of the farmer, and make the corn merchants princes. If a prohibitive duty is required, let it be a fixed one, a progressive duty will never answer the purpose intended, as long as other nations are independent. We say that the farmer is satisfied with the projected change; true, petitions to that effect has been presented to the House of Commons from several places, but really if these petitions were the production of our agriculturists, they have a greater share of folly than I at first imagined. But I cannot give them credit for that consummate ignorance to their own interest, which the greatest part of these petitions display. Are they not aware that the corn merchant is the only creature that will reap any benefit from the measure?

I confess that the corn-bill, as brought into the House of Commons, had a kind of feasibility on its side; and, simply considered in itself, seems to be a measure fraught with benefit to the country. Banish the corn merchants from the country,—they are worse than useless members of society, and it will be so. Taking the present taxation of the country into consideration, sixty shillings a quarter for wheat, with an average crop, will pay the farmer remarkably well, if he choose to live like a rational being. At sixty-two shillings, the protecting duty is to be twenty shillings, this may do very well with the progressive rise and fall in the scale of duties by the force of the home market, but what law is there to prohibit the corn merchants from their speculations? None. What is to prevent these men, who generally have money at command, to purchase a large quantity of foreign grain, and then, by fictitious sales amongst themselves, raise the average to seventy-two shillings, and then where is the farmers? The price of the foreign grain (wheat), carriage and all expenses included, may cost the corn merchant forty shillings a quarter, and he sells it at fifty, a moderate profit indeed? Only ten shillings a quarter. And is the British farmer able to cope with this? Do the farmers imagine, that because they are the particular friends of the middlemen, that these middlemen will keep up the price of their cheap grain? If they think so, they will find themselves much mistaken indeed.

Some people have hinted that the duty should be paid whenever the grain is brought to the country; how would this mend the matter, I would ask? The corn merchants would be fools in every sense of the word to bring the grain here until the market was free. This I am sure they will not do, as long as we have corn to be procured abroad. In short, the bill was intended as a protection to the agriculturists, and a boon to the country at large, but the operation of it will be to ruin the agriculturists, it will not keep the markets in a fixed state, they will rise and fall, not from the demand and supply in the home market, but from the state of the foreign. When the average has reached to seventy-two shillings, the corn merchant brings in his grain free of duty, the great supply lowers the market perhaps twenty shillings before the farmers can get a single quarter brought in. When he does bring it, the market is glutted, there is no sale for his commodity, and the corn merchant perhaps very kindly takes it off his hand at the reduction, it may be, of other ten shillings. It is not to be supposed that these gentlemen, when conferring a favour on others, will not have an eye to their own pockets, aud buy the grain as cheap as possible; they are not the people that will give more for the grain than the present market price. In a glutted market, the farmer, if he does not part with his grain at the price tendered to him, must take it home again, but it is more likely that the corn merchant's offer is accepted, and the farmer goes home to prepare another quantity of grain. In the midst of his operations, the market again rises, from the corn merchant's keeping his last purchases in store, and fictitious sales; he hurries on the second time, the corn merchant, however, has the second time before him, another cargo of foreign grain is thrown upon the market, the consumer is supplied, and the price comes down to the old level of forty or fifty shillings again, exactly at the time the farmer brings his into the market. What now is the farmer's resource? The corn merchant again becomes the purchaser, and he lays his recent purchase up in store, to repeat the former operations, whenever he thinks proper to secure the market again.

This may be deemed an ideal thought, and, that in reality, such things will not be; it is not impossible that they should happen, nay, it is likely that they will do so, I may say it is a moral certainty. The farmers once had their day, now they begin to droop, and the corn merchant starts up in their stead. The farmers themselves have put the weapon into these people's hands that will bring them to the dust, if not prevented by some circumstance as yet unforseen, the present tendency of affairs leads to that result. The most ample protection may be given, the return of averages may be demanded monthly or weekly, the duty may be demanded on importation; this is nothing, all can be evaded with the greatest ease under the operation of the projected corn-bill, and the poor farmer is ruined by the very means that he sought to obtain a little more of the world. It is this withal,—ambition and avarice defeats its own intentions.

I am but an humble individual in the world, whose place might be better supplied by another; yet I cannot refrain from giving it as my opinion that legislative enactments with regard to the necessaries of life, tends more to the benefit of a few, than the prosperity of the state. God knows, I wish my countrymen rich, but I wish that these riches were obtained by honest industry, and not by rambling speculation and fraud. Without resorting to the idea that the ingrosser of corn defrauds the public of their daily bread, it must be allowed that these speculators make it eventually dearer, and it would be a blessing to the country were no such people in existence. Middlemen of every description are the curse of a country, starts of prosperity may take place by these fictitious demands, but what is the consequence? As a man is raised above his native temperament by a fit of intoxication, so by these middlemen is the body commercial raised above its common level; and as the man, as soon as the stimulating liquor loses its effects, sinks into languor and disease, so does commerce languor, wither, and decay.

Could we not get quit of these middlemen, that the trade of the country might get into a healthy state? This is a question, with regard to some professions, I cannot answer. But I think we might easily get quit of the corn merchant, professedly a useless being in the nation. But before this desirable object can be obtained, the farmer must be convinced that he is only a man, and lay aside a little of his stupid pride.

Perhaps, indeed, were the bakers united amongst themselves, they might banish the whole race of corn merchants from the land, and thereby render an essential service to their native country. Let them, as a body, strictly refuse to purchase a single bushel of grain from a corn merchant, and support each other in their determination. I know that there is much to be said against the measure, and various obstacles will occur to prevent the completion of it, but still I believe that it is practicable, easier indeed than many are aware of.

Two-thirds of the wheat that grows in Great Britain comes through the corn merchant's hands, independent of foreign importations. For foreign grain we have no use, while our own is good, and there is less occasion for the corn merchant when we have wheat of our own growth; and well may their labours be spared, even without the consideration that their meritorious labours enhance the poor man's morsel of bread.

The bakers are foolishly the supporters of the corn-merchant men, who are the first to crush them when it is in their power. It is true, that it was originally the farmer's fault, in refusing to sell such a small quantity of grain, as the generality of bakers required at one time; but I am persuaded that many are now convinced, that the corn-merchant is the best friend to himself, and cares little indeed for any other individual. To get quit of these worthy gentlemen, it will be necessary for the farmer to bring his grain to the market,—not at stated periods, once or twice in a-year, but regularly every week, when the operations of the field will allow him. It would be a piece of wisdom, on the farmer's part, to be content with the currency of the market,—to lay up a stock of grain to day, to sell it the next, is folly; it must be a great advance that will pay a double journey, and the expense of keeping, and the probability is, that the grain will be cheaper instead of dearer. To obtain this desirable object, much depends upon the baker, the meal-man, and the miller,—none of these people should purchase a single bushel of grain from a corn-merchant; at times they may get, what is termed, a bargain, from the middle-man, from the fluctuation of the market; but this I am conscious of, that no regular trade can be carried on with them to advantage,—the public may rest assured, that the good bargains of the corn-merchant is, in nine cases out of ten, put in his own pocket.

That agents may be necessary to transmit grain from one quarter of the country to another, I allow; but, at the same time, I cannot perceive the expediency of allowing the corn-merchant to lay up a great stock of grain for the pleasure of creating an artificial famine in a country,—the most famed-for mercy in the world. If agents are necessary, as they may be, why not lay them under some restrictions, as to the profits which they shall take, as well as the baker? Or, why not make them pay a duty correspondent to the quantity of grain they put through their hands, the same as the distiller pays for the quantity of spirits he prepares for the market? But this, it will be said, is putting a tax upon the necessaries of life,—so it is; but what necessary is it, that is not taxed in some shape or other; and if there is one class of men, in the British Empire, worthy to be placed under the surveillance of the Excise laws, that class, I believe, is the corn-merchants.

Here, it may be insinuated, that I am going contrary to my own opinion, namely, that the sub-division of labour tends to the benefit of the nation. This opinion I still retain; but, in the case of the corn-merchant, or flour-factor, the rule will not apply,—the art of corn dealing is only improved in *price*, by every successive purchaser, until perhaps it reaches ninety per cent. above what the farmer received for it. Such an advanced price must, of course, be paid by some one; and, I am afraid, that many a poor baker has learned by experience, that he comes in for a *reasonable* share of it. But I am pleading for the abolition of a set of men that I deem useless; will the weapons that I have used, not be turned against myself? As this is such an age of invention, and improvement also, likely they may be so; it is not improbable, but that the builders of a modern Babel should start up amongst us; but before the fabric is half completed, a second confusion of languages takes place,—then, where shall the author of the present work be?—Machinery is to be the ruin of us all!

This is the age of refinement; and we are disposed to laugh at the rougher manners of our forefathers; they, simple bodies, were content with bread that had been manufactured by the aid of the baker's hands. Now, it seems, we must have machinery for the purpose, on account of our gentle folks getting so delicate in the stomach,—indeed, so delicate are some people grown, that their stomachs actually turns at the very idea of the baker's hands coming in contact with the bread that they use! Let me assure these people, however, that the baker's arms is the cleanest machinery that can be used for the purpose of kneading dough; but, if they still should imagine it to be proper, that machinery should be used for the baking of bread,—then, I contend, that machines should be invented to eat it also. How would it disgust these delicate people to inspect that nastiness which gathers around the teeth in the course of twenty-four hours,—were they to do so, with a good microscope, I am firmly persuaded, that the next instrument they would be seeking after, would be, either a hammer, or a pair of pincers, to knock, or pull out their teeth, that they might no longer be kept as a convenient habitation for such a multitude of vermin, as the microscope discovers.

But this apart, by what means is machinery to be made equal to the baker's work? Instruments may be procured to knead the dough; but what is that to the other parts of the work? Nothing. What machinery can mix up the liquor to a proper heat for every day in the year; set the spunge, know the exact time when it is ready; make the dough, weigh it; mould it down; get the oven in a proper heat, set the batch, and draw it out again when ready? All this is not required, say some; but I say that it is,—every one of these operations must be gone through; and if machinery cannot perform them all, our delicate stomachs still remain in the same predicament,—

for in each, and every one of these operations, almost every part of the bread must come in contact with the baker's hands.

Machinery, I own, has done much, and I am confident will do more; but it is not in the power of man to give, even to the most perfect, the feeling of sensitive beings; and, without that, none can be invented for the purpose of baking bread. True, a new creation may give into the hands of man some (as yet) unknown materials, whose just arrangement may supersede the necessity of resorting to the application of our present knowledge towards the benefit of the human race. Perhaps, a few years afterwards, a man, for pastime's sake, may pay a morning visit to his *friends* in the moon,—breakfast in Mercury,—dine in Mars,—drink his port in Jupiter,—take an afternoon's jaunt to Herschell,—leave his name at Saturn, as he returns to take up his night's repose in the arms of Venus. Well, will such things be? These are lunerian speculations, in appearance perhaps; but, children of *mortality*, who amongst you can say that such speculations will not be realized? The elixir of life is not yet invented; but, then, alas! to what purpose have I toiled, both night and day, for the improvement of an art, that may, to all appearance, be rendered useless at the very time that it is brought to perfection. The vulgar arts of eating and drinking, perhaps, will be soon forgotten, and then, my brethren of the coat, what is to become of us? The elixir of life, and this machinery! Why, some may be invented to eat bread as well as bake it; when this is brought to pass,—to all further improvements, we may add, what is the conclusion of all things, past, present, and to come, that insignificant, yet significant word,

FINIS.

APPENDIX.

A TABLE

OF THE

ASSIZE AND PRICE OF STANDARD WHEATEN BREAD.

IN TWO PARTS

Note.—That this Table is framed for Bread to be made of the whole produce of the Wheat, except the Bran or Hull thereof only; the said Produce to weigh three-fourths of the Wheat whereof it is made.

PART FIRST; OR, THE ASSIZE TABLE.

Contains in column No. I. the price of the bushel of Wheat, *Winchester* measure, from 2*s.* 9*d.* to 14*s.* 6*d.* the bushel, the allowance of the magistrates to the baker, for baking, included; and in column No. II. are the weights of the several loaves. So that at whatever price of the bushel of Wheat, with the allowance, the magistrates shall set the Assize,—the same price of Wheat is to be found in column No. I.; and even therewith in column No. II. will be found the weights of the several loaves.

Note.—That the same weight of standard wheaten assized bread as costs seven-pence, of wheaten assized bread will cost eight-pence, and of household assized bread six-pence; or, seven standard assized loaves will weigh eight wheaten assized loaves, or six household assized loaves of the same price, as near as may be.

PART SECOND; OR, THE PRICE TABLE.

Containing in column No. II. the price of the bushel of wheat, *Winchester* measure, from 2*s.* 9*d.* to 14*s.* 6*d.* the bushel, the allowance of the magistrates to the baker for baking included; and in column No. I. are the prices of the peck, half-peck, and quartern-loaves. So that at whatever price of the bushel of Wheat, with the allowance, the magistrates shall fix the price of bread, the same price of Wheat is to be found in column No. II., and even therewith, under No. I., will be found the prices of the several loaves.

Note.—That the standard wheaten peck loaf is always to weigh 17 *lb.* 6 *oz.* avoirdupois, and the half-peck and quartern-loaves in proportion; and when the said peck-loaf is sold for fourteen-pence, the wheaten peck-loaf is to be sold for sixteen-pence, and the household peck-loaf is to be sold for twelve-pence, and always as near as may be in the same proportion. No half quartern loaves are to be made.

		No. II.														No. I.							
The Price of the Bushel of Wheat and Baking.		PART I. ASSIZE TABLE.														PART II. PRICE TABLE.						The Price of the Bushel of Wheat and Baking.	
		Small Bread.					*Large Assize Bread.*									*Prized Bread.*							
		Penny.		Twopence.			Sixpence.			Twelve Pence.			Eighteen Pence.			Quarter Loaf.		Half Peck Loaf.		Peck Loaf.			
s.	*d.*	*oz.*	*dr.*	*lb.*	*oz.*	*dr.*	*lb.*	*oz.*	*dr.*	*lb.*	*oz.*	*dr.*	*lb.*	*oz.*	*dr.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
2	9	25	4	3	2	9	9	7	11	18	15	5	28	7	0	0	2¾	0	5½	0	11	2	9
3	0	23	3	2	14	5	8	11	0	17	6	1	26	1	1	0	3	0	6	1	0	3	0
3	3	21	6	2	10	12	8	0	5	16	0	11	24	1	0	0	3¼	0	6½	1	1	3	3
3	6	19	14	2	7	12	7	7	3	14	14	5	22	5	8	0	3½	0	7	1	2	3	6
3	9	18	9	2	5	1	6	15	4	13	14	7	20	13	11	0	3¾	0	7½	1	3	3	9
4	0	17	6	2	2	12	6	8	4	13	0	9	19	8	13	0	4	0	8	1	4	4	0
4	3	16	6	2	0	11	6	2	2	12	4	4	18	6	7	0	4¼	0	8½	1	5	4	3
4	6	15	7	1	14	4	5	12	11	11	9	6	17	6	1	0	4½	0	9	1	6	4	6
4	9	14	10	1	13	4	5	7	13	10	15	10	16	7	7	0	4¾	0	9½	1	7	4	9
5	0	13	14	1	11	13	5	3	7	10	6	13	15	10	4	0	5	0	10	1	8	5	0
5	3	13	4	1	10	8	4	15	7	9	14	14	14	14	5	0	5¼	0	10½	1	9	5	3
5	6	12	10	1	9	4	4	11	13	9	7	11	14	3	8	0	5½	0	11	1	10	5	6
5	9	12	1	1	8	3	4	8	9	9	1	1	13	9	10	0	5¾	0	11½	1	11	5	9
6	0	11	9	1	7	3	4	5	8	8	11	1	13	0	9	0	6	1	0	2	0	6	0
6	3	11	2	1	6	4	4	2	12	8	5	8	12	8	3	0	6¼	1	0½	2	1	6	3
6	6	10	11	1	5	6	4	0	3	8	0	5	12	0	8	0	6½	1	1	2	2	6	6
6	9	10	5	1	4	10	3	13	13	7	11	9	11	9	6	0	6¾	1	1½	2	3	6	9
7	0	9	15	1	3	14	3	11	9	7	7	3	11	2	12	0	7	1	2	2	4	7	0
7	3	9	9	1	3	3	3	9	8	7	3	1	10	12	9	0	7¼	1	2½	2	5	7	3
7	6	9	4	1	2	9	3	7	10	6	15	4	10	6	13	0	7½	1	3	2	6	7	6
7	9	9	0	1	1	15	3	5	13	6	11	10	10	1	7	0	7¾	1	3½	2	7	7	9
8	0	8	11	1	1	6	3	4	2	6	8	4	9	12	7	0	8	1	4	2	8	8	0
8	3	8	7	1	0	14	3	2	9	6	5	2	9	7	11	0	8¼	1	4½	2	9	8	3
8	6	8	3	1	0	6	3	1	1	6	2	2	9	3	3	0	8½	1	5	2	10	8	6

		No. II.														No. I.						No.2.	
The Price of the Bushel of Wheat and Baking.		PART I. CONTINUED. ASSIZE TABLE.														PART II. CONTINUED. PRICE TABLE.						The Price of the Bushel of Wheat and Baking.	
		Small Bread.					*Large Assize Bread.*									*Prized Bread.*							
		Penny.		Twopence.			Sixpence.			Twelve Pence.			Eighteen Pence.			Quarter Loaf.		Half Peck Loaf.		Peck Loaf.			
s.	*d.*	*oz.*	*dr.*	*lb.*	*oz.*	*dr.*	*lb.*	*oz.*	*dr.*	*lb.*	*oz.*	*dr.*	*lb.*	*oz.*	*dr.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
8	9	7	15	0	15	14	2	15	11	5	15	5	8	15	0	0	8¾	1	5½	2	11	8	9
9	0	7	12	0	15	7	2	14	5	5	12	11	8	11	0	0	9	1	6	3	0	9	0
9	3	7	8	0	15	0	2	13	1	5	10	3	8	7	4	0	9¼	1	6½	3	1	9	3
9	6	7	5	0	14	10	2	11	14	5	7	13	8	3	11	0	9½	1	7	3	2	9	6
9	9	7	2	0	14	4	2	10	12	5	5	9	8	0	5	0	9¾	1	7½	3	3	9	9
10	0	6	15	0	13	14	2	9	11	5	3	7	7	13	2	0	10	1	8	3	4	10	0
10	3	6	13	0	13	9	2	8	11	5	1	6	7	10	1	0	10¼	1	8½	3	5	10	3
10	6	6	10	0	13	4	2	7	12	4	15	7	7	7	3	0	10½	1	9	3	6	10	6
10	9	6	7	0	12	15	2	6	13	4	13	10	7	4	6	0	10¾	1	9½	3	7	10	9
11	0	6	5	0	12	10	2	5	15	4	11	13	7	1	12	0	11	1	10	3	8	11	0
11	3	6	3	0	12	6	2	5	1	4	10	2	6	15	4	0	11¼	1	10½	3	9	11	3
11	6	6	1	0	12	1	2	4	4	4	8	9	6	12	13	0	11½	1	11	3	10	11	6
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14	3	4	14	0	9	12	1	13	4	3	10	9	5	7	13	1	2¼	2	4½	4	9	14	3
14	6	4	13	0	9	9	1	12	12	3	9	8	5	6	5	1	2½	2	5	4	10	14	6

ECONOMY AND CLEANLINESS,—CERTAINTY AND DISPATCH
COMBINED IN

THE PETRISSEUR,

OR

DOUGH-KNEADING MACHINE.

A PATENT APPARATUS
WHICH WAS INVENTED, AND IS HEREIN DESCRIBED
BY
Messrs. CAVALLIER, BROTHER, AND COMPANY
OF
PARIS;
FOR THE MUCH DESIRED AND INVALUABLE PURPOSE OF
MAKING BREAD
WITHOUT THE DISGUSTING, TEDIOUS, DEFECTIVE AND
EXPENSIVE AGENCY OF HANDS AND
FEET LABOUR.

PUBLISHED BY J. CLEMENTS, 17, LITTLE PULTENEY
STREET, NEAR REGENT STREET,
AND MAY BE HAD OF ALL BOOKSELLERS,

WITH A LITHOGRAPHIC DIAGRAM OF THE MACHINE,
Price, One Shilling.

[ENTERED AT STATIONERS' HALL.]

London:
PRINTED BY W. FOAT,
17, JOHN STREET, EDGWARE ROAD.
1830.

ADVERTISEMENT.

AS every human being is directly and indirectly interested in the production of good, cheap, and especially *cleanly* manufactured bread, no apology will therefore be offered for thus communicating to the British Public the means of obtaining a combination at once so rare and desirable. The truly barbarous and disgusting process of bread-making by the *naked* hands, arms, and, not unfrequently, even *feet* of men, has already too long prevailed among all civilized nations. To the French, mankind are indebted for the invention of a desideratum in domestic economy, namely—THE PETRISSEUR, or *mechanical* bread-maker.—The adoption of this ingenious and valuable improvement in machinery, as a substitute for manual labour, will no doubt soon become popular in England, where every thing useful, however foreign its origin, or simple in design, is immediately and duly appreciated.

It must first however be made generally known; to promote which is the chief object of this little translation.—A second, is to stimulate others to make such further improvements in the invention as it may be found susceptible of receiving. For this purpose a small machine will be deposited, as a model, in the National Repository, King's Mews, Charing Cross; where all may have an opportunity of seeing, studying, or examining its construction, &c. It is now only necessary to state here, that every advantageous suggestion or modification, foreign or domestic, which may be made in the Petrisseur, shall, from time to time, be superadded to this unpretending but useful little work; in the hope that every public establishment, and private family in the empire may not only patronize "*Pain à la mechanique*," but also, have their Petrisseurs manufactured at the lowest expense, on the best principle, and under their own direction.

London,
April 20th, 1830.

DESCRIPTION, &c.
OF
THE PETRISSEUR,
OR
MECHANICAL BREAD MAKER.

PART THE FIRST.

Means of Preserving, Regulating, and Repairing the Patent Dough-Kneader, or Bread Making Machine.

Of the Scraper and Roller.

This machine is composed of three principal parts, not including the *trough, wheels,* or component parts thereof. These three parts are: the *scraper, roller,* and *levers,* or regulaters. The scraper is the wooden band placed over the roller, which divides the trough, lengthways, into two equal parts. It is one of the most delicate parts of the machine; and therefore, in its adjustment, demands the utmost care and precision. Should it happen, by any cause whatever, Of the Scraper and Roller.

that it did not form a perfectly right line to its *iron* covered angle or edge, it will be nesessary to render it quite straight and smooth by filing the iron. The defect here alluded to would be perceptible by the circumstance of the *scraper* pressing too hard upon the roller in some places, while in others, it would be too distant from it for the due performance of its exclusive function, namely,—that of cleaning, or cutting off all adhesions from the roller at each revolution. This repair, however, should not be resorted to unless all other means fail to re-establish an exact parallelism between the scraper and roller, by the play of the *screws* hereafter mentioned.

After such repair, and also, in those cases in which the *scraper* may either be expanded or contracted by the dryness or dampness or the place wherein the machine is kept, it will be necessary to regulate anew, and with great exactness, its distance from the roller. The following is the way to act in all such cases. Begin by taking off the bored *balls* from the top of each of the two *screws* placed vertically at the extremities of the *trough;* then turn aside the box of the screw gently with the *crooked* or bent key, which accompanies the machine for this purpose; and then, by means of a *second* key, and the *square* part executed on the head of the screw, turn the same screw to the right or to the left until a very thin card, placed between the scraper and the roller, can be moved the whole length of the trough,—meeting, however, with a slight resistance. That done, press the nut against the cast iron pieces near which it is, and replace the balls.

In some of the machines first constructed, the screw

Of the Scraper and Roller.

of the end opposite to the handle, does not act the same as the other; for instance, when the ball is loosened, it is not the *screw*, but the *nut* that must be turned. The nut is placed over the screw, under the iron plate belonging to the scraper; after which, the ball is fastened as usual; the handle being fixed on one of the arms of the fly wheel,* and in the groove which allows it to withdraw from, or approach to the centre, at the will of the proprietor of the machine, and according to the stature of the workman who turns, and the intention of working a *firm* or *soft* dough. Care, however, must be taken when changing the position of the handle, and generally, when regulating any part of the machine, to press or fasten well the nut and screw that may have been so worked or altered.

Of the Levers and Roller.

The object of the levers is to determine the distance between the under part of the roller, and the bottom of the trough. That distance must be uniform throughout its entire length; and, consequently, the pins which fix the levers of the two ends of the machine ought to be placed in holes which exactly correspond to one another. If, by mistake, the roller is made to work with one lever in the first hole, and one in the second or third, the operation would of course be imperfect and slower; and the machine would run some risk moreover of being injured.

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* The machines which are constructed for the manufacture of a lesser quantity of dough than 300lb. have no *fly wheel*, their handles or winches are fixed on the axis of the pinion.

PART THE SECOND.

Enumeration and Use of the detached Parts of the Mechanical Dough Kneader.

The pieces which accompany this machine, are, viz: two fountains,* a rake, a tin grapple, two boards, a hand-scraper or knife, a spatula or flexible knife, and a key or turn-screw. The fountains have a three-fold object, namely:—In the first place, to diminish the capacity of the machine at will, so as to operate upon a smaller quantity of dough than that for which it was originally intended. Secondly, to enable the operator to form several sorts of dough at one and the same time. And Thirdly, for the purpose of manufacturing leaven only.†

When the operation is to be performed on a small quantity of flour, it is always advantageous to diminish, by means of the fountains, the length of the space occupied by the dough, and thus force the flour to rise higher on each side of the roller. Besides the three iron pins which fix the fountains upon the border of the machine, and upon the scraper, there is a fourth, which must also be placed across the same scraper, towards the bottom, and in a hole formed for that purpose: without this precaution, the fountains could not remain in the vertical position which is indispensable for the fulfilment of their object. The number 1, stamped upon the trough, designates the place of the first of the boards of the fountain, which bear the same number.

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* The fountains are only applied to machines of 200lbs. of dough and upwards.

† Leaven is generally used in France, instead of yeast or barm, as in England, for the purpose of fermenting dough; and yet french bread is proverbially excellent. These facts are perhaps not unworthy of notice; although so far as the *machine* is concerned, the use, quality, or denomination of the *fermentable* matter is an affair of indifference. Its selection rests exclusively with the taste, judgment, and discretion of the operator.—*Translator.*

The rake serves to break and spread the leaven; or, if desired, to form a light mixture, previous to the turning or working of the roller.

The tin grapple is intended to convey the flour to the trough.

By means of the *small boards*, the flour is made even, after it has been put into the trough and diluted. The use of the hand-knife, which may also be called a *dough-cutter*, is to cause the dough that may have adhered to the partition of the trough, to fall at every turn, and to cast the last particles under the roller.

The *flexible knife* serves to complete the cleansing of the trough, at the end of every operation, by taking away the least remains from under the roller; it likewise serves to withdraw any dough that may stick to the rake, after the process of diluting is finished. It is also employed, instead of the hand-knife, to detach the dough usually found adhering to the partitions of the trough.

The *key* is necessary to fasten and loosen the screws, and especially for the working of those destined to regulate the exact distance from the scraper to the roller.

PART THE THIRD.

Mode of Preparing the Leaven and the Dough.*

Leaven or Yeast.

The dough reserved from a preceding baking, and which is allowed to *ferment,* or become sour, is what is commonly called chief, or first leaven. To make this leaven, that is to say, of the first degree, the length of the trough must be reduced, by means of the fountains, in such a manner as to form two squares or divisions, according to the two former cases, and adapted to the quantity of leaven intended for use. The roller ought to then be placed, and kept at its lowest point. A small quantity of flour is to be put behind the fountains, to prevent the running of the water; then the *chief* leaven is made to fall into one only of the squares which have been formed, and the water destined to dlute it is poured in: this act of diluting is performed with the assistance of the rake. When the leaven is dissolved, or nearly so, the flour which is to augment it, is thrown over it; the roller is raised to its highest pitch, and the handle

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* See Note on Leavens Page.

Leaven or Yeast

is turned, that the mass may accumulate under the roller. The operation of *turning* must be continued, on the *same side,* as long as any portion of it is seen to pass from one compartment of the trough to the other. As the motion gradually ceases, turn the handle in the opposite direction, and so on till the *alloy* be collected into one side or compartment only.

This operation would be abridged if, after having thrown the flour into the trough, the whole were to be mixed with the rake; because the mass or matter having then some solidity, would accumulate the more easily and readily under the roller; and one of the compartments of the trough would be emptied without the necessity of turning the handle so long, or in an opposite direction.

Allusion is made to the first mode of operation, merely to shew that the use of the rake is only of absolute necessity while diluting.

When one side of the trough is emptied, the leaven or alloy is made to pass from the other, by turning the handle in an inverse direction; and the same act must be continued till there is a sufficient quantity of dough, and till it attains the desired state.

It will be therefore necessary, for this purpose, to lower the roller one degree every other turn.

In order to render this leaven what is called the *second degree,* it is only necessary to enlarge the square: the same thing is done for the leaven denominated complete. Generally, the leaven is augmented or refreshed three times, and the weight is then about 200lbs., in the bake-houses at Paris; but if it be the custom, at any particular bake-house, to make more or less than three leavens, there is no inconveniency

Of Dough

or objection. The last, or perfect leaven, is to be kept, by means of the fountains, on both sides of the trough, in a square so compressed, that when it reaches its highest point of fermentation, it may fill, and even overflow the said square.

The roller then being lowered to its last degree, the fountains are withdrawn; the leaven is spread all the length of the trough; all the water considered necessary for the oven-full is poured in at once, and then diluted with the rake, in the manner already stated. This operation, executed *by one man,* requires only three minutes labour for 200lb. of leaven.

The business of diluting concluded, all the flour is put in at once; its quantity is to be calculated with all possible correctness; but care should be taken that there should be a deficiency rather than excess, for it would be preferable to have to add flour, than water.

The flour ought to be spread with the small boards, so as to form an even surface on both sides of the machine. It will then be necessary to raise the roller to its highest degree, and to act as before stated, when treating of the leavens; using the rake or not, at pleasure.

If, in the course of the first turns of the roller, the dough appear too soft, add as much flour as will prevent the necessity of using more afterwards. Too much confidence must not, however, be placed in first appearances; because later, and especially when the dough is on the board, or in the fountain, it acquires more solidity than might at first be expected.

This part of the process concluded, the roller is lowered one degree, at which point the dough is made

Of Dough.

to take two turns, that is, to go and come, or pass and return; after which the roller is made to descend to the last point or degree, when the dough should pass successively from one department of the trough to the other, till it be sufficiently kneaded. At Paris the dough is generally made in five or six turns. Before the last turning, and when the dough occupies only one side of the machine, a fountain is adjusted on the empty side, so as to form a square, or space in which the *leaven* for the following ovenful is deposited.

As this square is generally found too small, in Paris, to contain all the leaven, in its state of *fermentation*, therefore, when the opposite one is empty, the other fountain is fixed, facing the first, and the leaven distributed in both, so that when the fermentation increases, none of the matter may run over the sides. To encourage fermentation, the dough is usually covered. The firm and the wet dough are kneaded in the same manner; except that for the former the number of turns is to be reduced, unless particular precautions become necessary, from the degree of fermentation of the leaven, or other motives.

In every such case, the baker or operator, can easily determine with propriety and sound discretion. The operation of wetting, is made by sprinkling the dough over with water, by means of a brush, taking care to turn the roller at the same time; because, by thus constantly presenting a new surface, every part of the dough becomes equally damp. For the purpose of withdrawing the dough from the trough, it may be taken upon the roller as it comes in large pieces against the scraper. Each piece is put into a

Of Dough. common basket, whence it is taken to be formed into loaves, &c.; but this mode is only adopted where the machine is in a different situation from the bake-house, and where the weighing cannot take place. In the contrary case, the dough is left for preparation in the compartment in which the last turn of the roller has lodged it, and from which it is gradually taken away to be weighed; an operation that may be performed on the cover or lid of the trough itself. It is easily conceived, that if only one ovenful were to be made, or if, according to the method of some countries, a particular leaven were to be used for each ovenful, there would be no need of preserving a leaven which was not to be employed. It is likewise to be observed, that the baker who posseses any knowledge of the flour he makes use of, and of the bread he wishes to make, can easily regulate, by the mere inspection of the dough, the number of turns necessary to obtain a favourable result from the roller. Nor is it less worthy of remark, that, towards the end of each turning, that is, when one side of the trough is on the point of being emptied, it will be always necessary to scrape, once with the hand-knife, the dough adhering to the partitions, and cast it, together with that which remains stationary at the bottom, under the roller, while revolving.

The use of water rather warmer than usual is particularly recommended in order to raise the temperature of the roller; it being a good conductor of caloric or heat, it easily places itself in equilibrium with the Ambient air. In winter this precaution is indispensable. If notwithstanding this recommendation of adding rather a smaller, than a larger quantity of flour after diluting, it should be perceived that the dough is too firm, and that employment of more becomes necessary, it should be done by sprinkling the dough equally with a brush, as already directed and explained. As to the other parts of the process—namely, the quantity and degree of fermentation, and the space of time during which the dough is left to rise, they are to be conducted according to whatever system choice or locality may have established. Of Dough.

It should not however be overlooked, that by the Petrisseur, or dough-kneading machine, the flour is better and more equally blended; and that each particle is placed in immediate contact with the water. Hence it not only imbibes all the water that is susceptible of absorbing, but requires more than mere manual labour could communicate to it. In this respect also the baker can easily determine the necessary increase.

In short, the kneading of dough by the mechanical means under consideration, differs only from the ordinary process by being more *perfect*.

For instead of blending flour by the uncertain and unequal arm of man, theuniform and steady action of the roller is substituted for that desirable purpose.

Thus it rests with the baker's discernment to avail himself of the many advantages derivable from a machine which is in itself at once simple and ingenious. For it must be evident to all, that every requisite for the making of dough is combined in this piece of mechanism;—such as the renewal of the surfaces, the action of the air, the equalization of the particles, &c. &c.

Explanation of the Plate.

A. A.	Trough, or box, made of Oak, the form of which resembles a common trough, the bottom of which is made round, or, more correctly speaking, concave, and lined with sheet iron.
B.	Hollow Cylinder, or Roller, made of cast iron ; its two axes B. B. are manufactured of wrought iron, and are lodged in the seats G. which follow the motion performed to raise or lower the roller,
C. C.	Bags, or seats, they extend downwards, so as to close the verticle Jag, or notch, which is formed to receive them at each extremity of the trough. These pieces have two cheeks in the interior, which serve to keep the *Scraper* sideways.
D.	Scraper, or dough cutter, composed of a thick board of oak ; the under part of which becomes gradually thiner, and terminates in an acute or sharp angle, covered with iron.
E. E.	Screws, which are supported by the pieces C. and which serve to regulate, with precision, the proper distance of the Scraper from the Roller.
F.	Nut, or box, of the screws, E. E.
G.	Ball,---it serves as a counter box, and embraces the piece of iron H.
H.	That piece or plate of iron fixed on the upper part of the Scraper.

Levers,---by means of which the distance from the bottom of the trough to the inferior tongue, or wedges of the roller is regulated, so as to determine, at pleasure, the thickness of the cake of dough which passes under the roller.	I. I
Eye of the Lever, into which the projection K. penetrates.	J.
Projection, or round shaft, belonging to the support C.	K.
Extremity of the Lever.	L.
Pin, or bolt, by means of which the end of the roller is fixed to a convenient height.	M
Wheel, with teeth or cogs, fixed on the extremity of the axle-tree of the roller.	N.
Pinion, which communicates motion to the wheel and roller.	O.
Round Shaft, mounted on a piece of cast iron, which serves as an axle to the fly wheel.	P.
Fly wheel, on which the pinion is fixed on one side, and the handle on the other.	Q.
Handle.	R.
Cover of the trough.	S.

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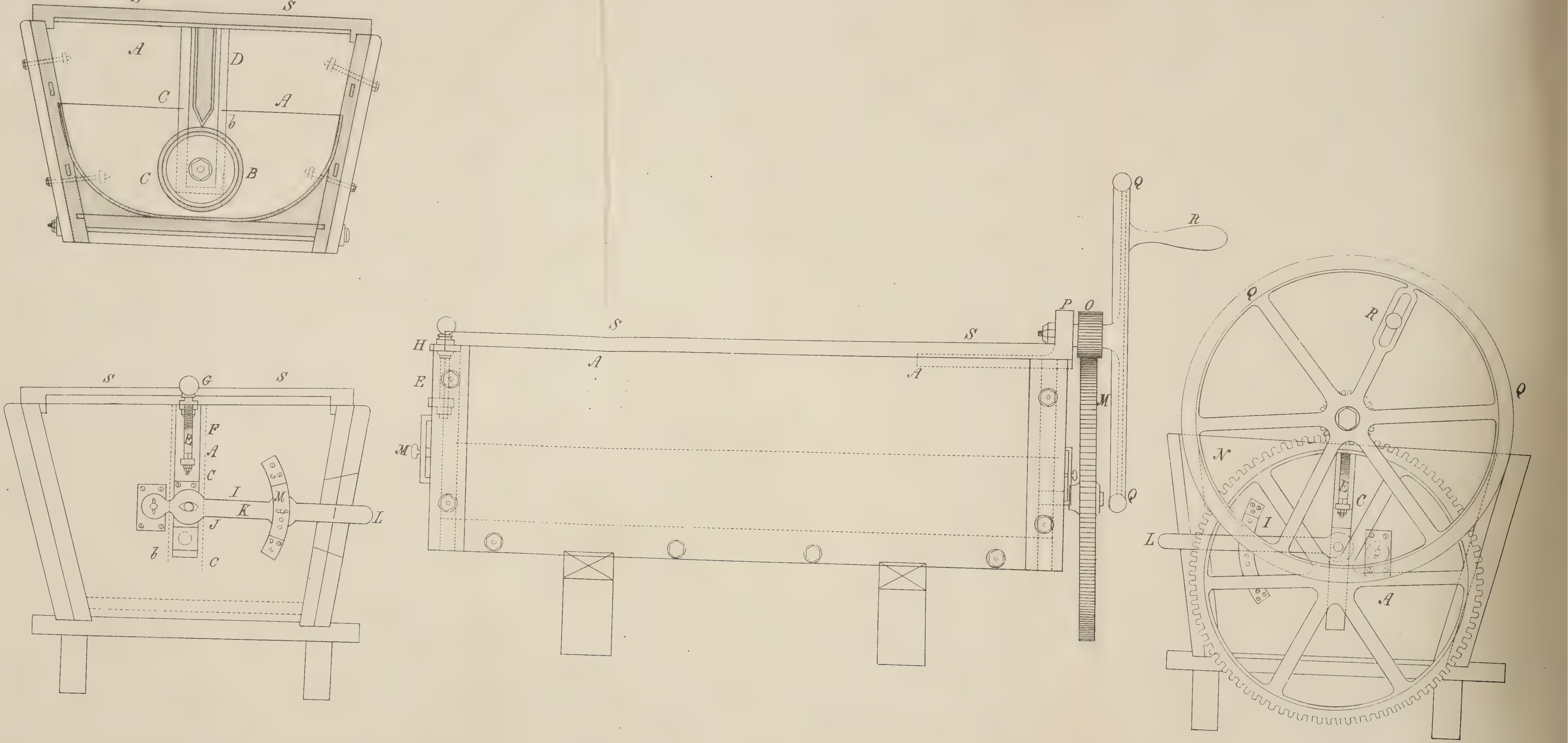
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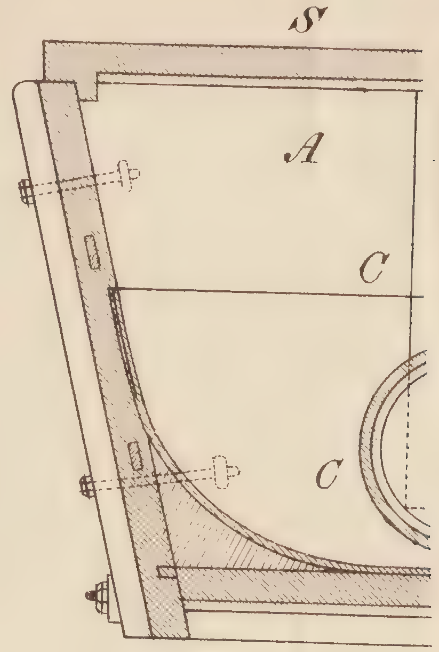
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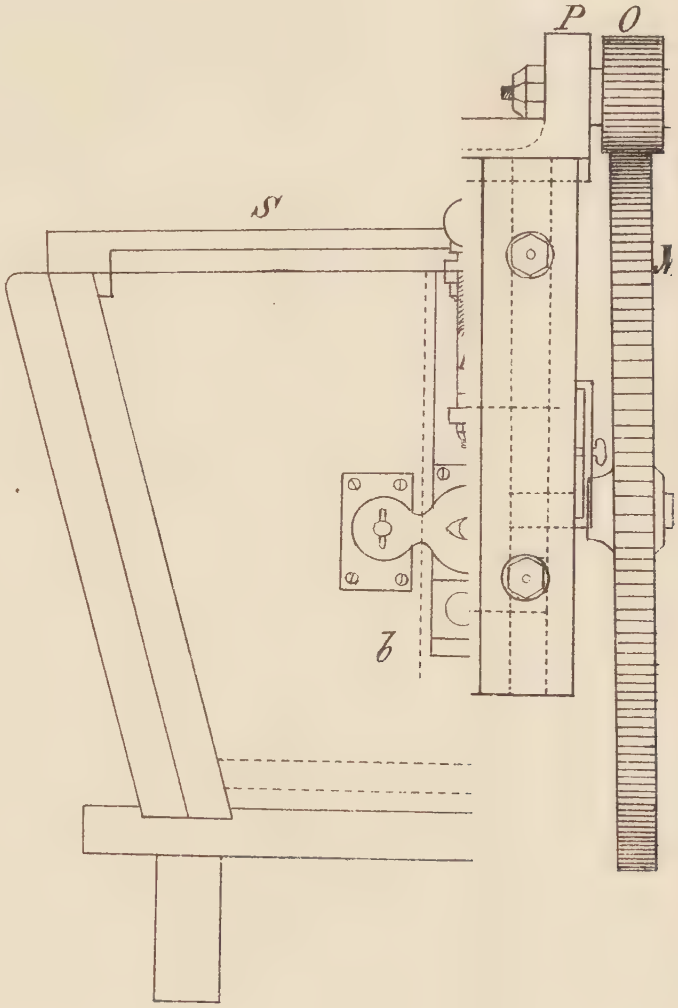
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